ST NEWS
PRODUCTS
PROGRAMS
HELP
Page 67

$12.95
DISK
INCLUDED

Antic®

The ATARI® Resource

FEBRUARY 1987 VOLUME 5, NUMBER 10

The quick brown fox writes better with an Atari. . .

- faster
- cleaner
- easier

Write Books on Your Atari

Word Processing Breakthrough

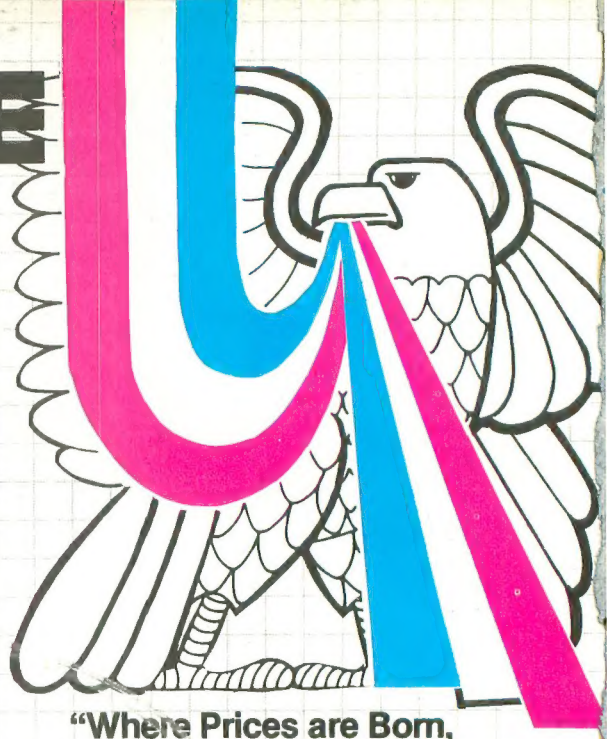
7 software choices for your 8-bit

0 74470 12728 02

Inside: 8 Type-In Programs (Including 2 ST Programs)

WHITEHOUSE COMPUTER

P.O. Box 4025 Williamsport, PA 17701



"Where Prices are Born, Not Raised."

Hours:
Monday-Friday
9 a.m.-8 p.m.
Saturday 9-12 p.m.

ORDER TOLL FREE 1-800-351-3442

VISA 4%, MASTER CARD 4%, AMERICAN EXPRESS 5%

CUSTOMER SERVICE AND PA RESIDENTS CALL 1-717-322-7700

COMPUTERS

800XL	$79
65XE	89
130XE	127
520ST (MONO)	CALL
520ST (RGB)	CALL
1040 ST	CALL

MONITORS

AMDEK

300G	$117
300A	127
310A	145
Color 600	395
Color 700	494
Color 710	568

ATARI

SM124	$169
SC1224	325

NEC

1201	$139
1205	89
1260	79

TAXAN

220 Color/Green/14"	$179

THOMSON

CM365 RGB/Color/Green With Cables	$269

TEKNIKA

MJ-10	$159
MJ-22	254

SAKATA

SC-100	$140

ZENITH

ZVM 1220	$95
ZVM 1230	95

BLUE CHIP

Green	$89.00
Amber	93.00
Color/RGB	279.00

PAPER

WHITE 20 LB LAZOR EDGE

2500 Sheets	$26
1000 Sheets	16
500 Sheets	11

ASSORTED PASTELS LAZOR EDGE

2500 Sheets	$44
1000 Sheets	26
500 Sheets	16
1000 Mailing Labels	9

PRINTERS

CITIZEN

MSP [illegible]	$267
MSP-15	367
MSP-20	354
MSP-25	527
120D	194

STAR MICRONICS

NX-10	CALL
Gemini II	CALL
SG-15	$366
SD-15	440
SR-10	469
SR-15	580
SB-10	588
SG-10C	230
Powertype	295

LEGEND

808	$154
1080	205
1380	259
1385	295

OKIDATA

Okimate 10	$171
Okimate 20	211
182	214
192	348
U-93	389

PANASONIC

1080	$209
1091	231
1592	459
1595	CALL
3131	259
3151	408

SEIKOSHA

SP 1000	$188 100CPS/NLQ
MP1300AI	525 300 CPS/NLQ

EPSON

Call for current pricing on all Epson models

PRINTER RIBBONS AND DUST COVERS AVAILABLE

DISK DRIVES

1050	$127
Happy 1050	275
Happy Enhancer	129
Duplicator	129
Indus GT	194
SF314	215
SF354	149
Astra	CALL
US Doubler	49

MODEMS

XMM 301	$39
MPP 1000E	39
MPP 1200AT	159
MPP 1200ST	149
Team Modem	145
Avatex 1200	95
Avatex1200HC 100% Hayes	143
Packard/Bell 1200	199
Compuserve	21
U-Call	36

INTERFACES

MPP 1150	$45
U-Print/Port	40
U-Print 16K	69
U-Print 64K	85
PR Connection	63
PR Modem Cable	11
PR Printer Cable	11
Xetec	39
U-Print 1200XLP	49
520 ST/IBM Cables 6 ft.	11
Micro Stuffer	69

DISKETTES

3½ FUJI

SS/DD	$17
DS/DD	24

NASHUA

SS/DD	$21
DS/DD	26

5¼ FUJI

SS/DD	$11
DS/DD	14

ELEPHANT

SS/DD	$12
DS/DD	14
Disk Notchers	$4

Disk Banks

Allsop	CALL
Innovative Concepts	CALL

SOFTWARE

BATTERIES INCLUDED

Paperclip	$36
Paperclip/Spell	CALL
Spell Pack	CALL
Home Pak	31

BRODERBUND

Karateka	$18
Lode Runner	18
Print Shop	27
Graphic Libraries I, II, & III	15
Print Shop Companion	25

SYNAPSE

Synfile	$30
Syncalc	30
Syncalc Templates	14

MICROPROSE

F-15 Strike Eagle	$21
Silent Service	21
Kennedy Approach	21
Crusade In Europe	21
Conflict In Nam	24
Gun Ship	24

OSS

Mac 65	$48
Action	48
Basic XL	38
Basic XE	48
Tool Kits	18

SUBLOGIC

Flight Simulator II	$31
Night Mission Pinball	21
Jet	CALL

XLENT

Mega font	$19
Page Designer	21
Rubber Stamp	23
Typesetter	23

ICD

Rambo XL	$36
US Doubler	49

ATARI

Visicalc	$14
Atariwriter	21
Atariwriter +	32
Learning Phone	26

ORIGIN

Ultima 3	$33
Ultima 4	38

SSI

Nam	$25
Six Gun Shootout	25
War In Russia	49

520 ST SOFTWARE

BATTERIES INCLUDED

Degas	$25
HomePak	CALL
Paperclip Elite	CALL
I*S Talk	CALL
I*S Time + Billing	CALL

FIREBIRD

The Pawn	$27

OASIS SYSTEMS

Sun Dog	$25

HABA

Habawriter	$32
Checkminder	39
Habaview	39

HIPPOPATAMUS

Hippo Spell	$26
Hippo Simple	26
Hippo Word	26
Almanac	22
Backgammon	24

MARK OF THE UNICORN

Hex	$25
PC Intercom	65
Final Word	94

MICROPROSE

Silent Service	$25

SUBLOGIC

Flight Simulator	CALL
Jet	CALL

VIP

VIP Professional	$99
VIP Professional Lite	65

XLENT

Rubber Stamp	$33
Typesetter	26

OSS

Personal Prolog	CALL
Personal Pascal	CALL
Personal Disk Kit	CALL

PHILON

Fast Basic-M	CALL

Ordering and Terms

Place orders Mon-Fri 9am-8pm, Sat. 9-12 pm. Customer service calls taken Mon.-Fri. 10am-4pm. No deposit on C.O.D. orders. Free freight on all prepaid cash orders over $300 in the continental U.S.A. APO andFPO orders add $5 per hundred. Priority mail add $10 per hundred. All foreign orders add 8% for shipping. UPS shipping add $4 per hundred Eas Coast, $5 per hundred West Coast. PA residents add 6% sales tax. Free shipping for PA residents. Orders by company and personal checks held 3 weeks. Defective products require prior return authorization. Defective products will be replaced or repaired according to warranty. **No used or reconditioned products sold.** Prices and availability are subject to change without notice. No cash refunds.

CIRCLE 074 ON READER SERVICE CARD

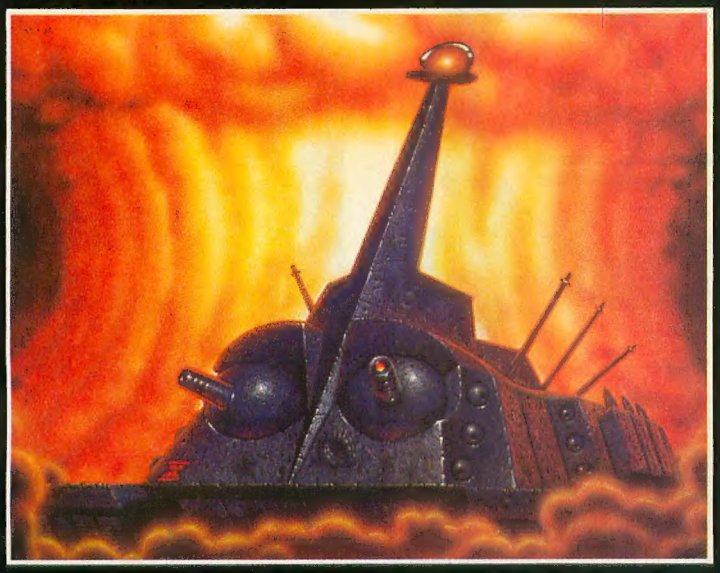
Origin Systems,
creators of the award-winning Ultima® series, presents:

OGRE

Total war against a juggernaut fighting machine

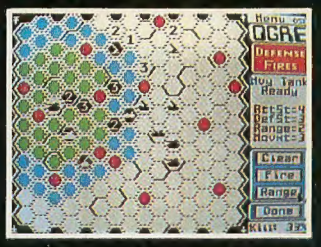
Available on Apple®

by Steve Meuse



A strategy game for one or two players, OGRE pits an array of infantry and armored forces against a single cybernetic supertank, bristling with weapons—the OGRE.

Adapted from the classic Steve Jackson board game, Computer OGRE epitomizes simplicity and play balance. Players can use standard game maps or design their own.

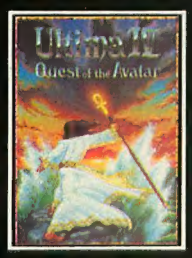


Using the RANGE option, a heavy tank considers its move and fire range.

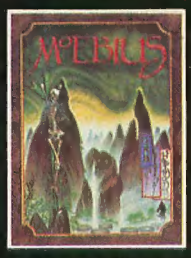
OGRE—the challenge of a lifetime is waiting.

ORIGIN SYSTEMS INC. 340 HARVEY ROAD, MANCHESTER, NH 03103 (603) 644-3360

ULTIMA™ III sends you on an incredible fantasy role-playing journey through monster-plagued Sosaria in search of the elusive Exodus.



ULTIMA™ IV is the long-awaited sequel to Ultima™ III. The Quest of the Avatar is a quest to the final frontier—the self.



MOEBIUS™ takes you through the elemental planes of a colorful Oriental world of fantasy and adventure in search of the Orb of Celestial Harmony.

AUTODUEL™ is a futuristic fast-paced strategy role-playing game where the right of way goes to the biggest guns.

OGRE and Autoduel are registered trademarks of Steve Jackson Games, Incorporated. Ultima is a registered trademark of Richard Garriott. Moebius is a trademark of Greg Malone.

Authors wanted. Call us today.

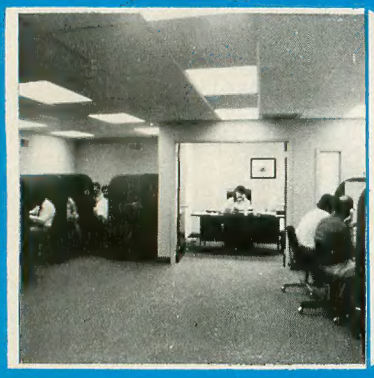
CIRCLE 085 ON READER SERVICE CARD

" NOT ALL MAIL ORDER FIRMS ARE CREATED EQUAL"

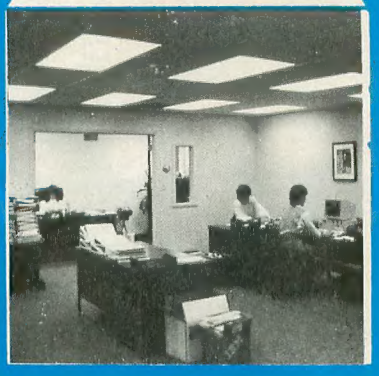
You'll appreciate our courteous and experienced sales staff and trained customer service department.

Lyco Computer is one of the oldest and most established mail order computer firms in the nation.

LY CO COMPUTER



Our services, prices and excellent staff cannot be imitated. Compare our services.



Lyco Computer's warehouse provides you access to the nations largest inventory..

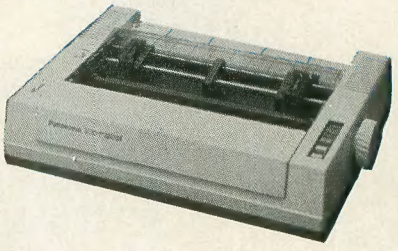
CALL US TOLL FREE 1-800-233-8760

Panasonic
Industrial Company

$199.00

1080I HIGHLIGHTS

- ★ 120 cps Draft
- ★ 24 NLQ
- ★ Friction Feed
- ★ Proportional Space Printing



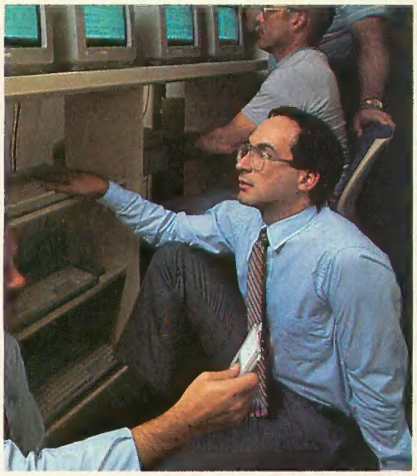
1080*i*

CIRCLE 038 ON READER SERVICE CARD

Antic®
The ATARI® Resource

Wilkinson on 130XE RAM Page 35

FEBRUARY 1987, VOLUME 5, NUMBER 10



Atari's Bulletin Board 52

Game of the Month 10

Antic—The Atari Resource is published twelve times per year by Antic Publishing. Editorial offices are located 544 Second Street, San Francisco, CA 94107. ISSN 0745-2527. Second Class Postage paid at San Francisco, California and additional mailing offices. POSTMASTER: Send address change to **Antic**, P.O. Box 1919, Marion, OH 43306.

FEATURES

HOW TO WRITE BOOKS WITH YOUR ATARI by David Wade 16
Author of 15 published novels

THE SAN FRANCISCO FOGGER by Charles Jackson 20
Rate your writing—**with 8-bit or ST** TYPE-IN SOFTWARE

WORD PROCESSORS: 7 FOR THE 8-BIT by Gregg Pearlman 24
Finally, a real choice

130XE DOUBLE FEATURE by Nat Friedland 34

RAM BANKS ON THE 130XE by Bill Wilkinson 35
Access the full 128K memory

130XE SLIDE SHOW by Bill Marquardt 38
Flash 8 pictures lightning-fast TYPE-IN SOFTWARE

ELECTRIC CHARLIE! by Patrick Bass 42
Pop-up window explains error messages TYPE-IN SOFTWARE

REBOUND CONSTRUCTION KIT by J.D. Casten 44
Prizes for best screens TYPE-IN SOFTWARE

SOFTWARE LIBRARY

TYPE-IN LISTINGS SECTION 87

DEPARTMENTS

EDITORIAL
8-BIT "VS." ST? by Nat Friedland 6

GAME OF THE MONTH
QUATRO by Jeremy Birn 10
Line up 4 squares before your Atari does TYPE-IN SOFTWARE

COMMUNICATIONS
ATARI'S BULLETIN BOARD by Gigi Bisson 52
5 STs with hard disks, 12,000 monthly calls

STARTING OUT
NEW OWNERS COLUMN by David Plotkin 55
Lesson 11: ATASCII, PEEK and POKE TYPE-IN SOFTWARE

USERS GROUP OF THE MONTH
WAACE by Gregg Pearlman 60
D.C.'s 1,500 Atarians

ST RESOURCE

1ST WORD PRINTER DRIVERS by Patrick Bass 69
How to make them

PRINTSET by Brad Robillard 73
Automatic printer control codes TYPE-IN SOFTWARE

ST REVIEWS 78

ST NEW PRODUCTS 81

I/O BOARD 8
NEW PRODUCTS 31
PRODUCT REVIEWS 47
ADVERTISERS LIST 111
SHOPPERS MARKET 112
TECH TIPS 114

Antic
The ATARI Resource

Publisher
James Capparell

Editorial
DeWitt Robbeloth, Executive Editor; Nat Friedland, Editor; Charles Jackson, Technical Editor; Patrick Bass, ST Program Editor; Gregg Pearlman, Junior Editor; Heidi Brumbaugh, Editorial Assistant; Bill Marquardt, Technical Assistant; Jon Randall, Editorial Clerk; Ron Luks, Online Editor.

Contributing Editors
Ian Chadwick, David Plotkin, David Small.

Art
Claudia Steenberg-Majewski, Art Director; Gregory Silva, Assistant Art Director; Jim Warner, Design/Production Assistant; Katherine Murphy, Ad Production Coordinator; Julianne Ososke, Collateral Printing Coordinator; Christine Walker, Mary Rhomberg Lavery, Dwight Been, Contributing Artists.
Cover photography: Rick Der

Circulation
Margot Olmstead, Manager; Dixie Nicholas, Subscription Coordinator; Eric Gupton, Distribution Coordinator; Daniel Barrett, Ken Warner, Dealer Sales.

Administration
John Cady, Assistant Controller; Buddy Weisman, Office Manager; Lorene Kaatz, Credit & Collections; Tom Chandler, Fidez Bituin, A/R; Lydia Chee, A/P; Lawrence Sumpter, Retail Order Processing; Budiman Goutama, Cecilia Calara, Catalog Order Processing; Griselda Lopez, C/R; May Lai, P/R; Aurora Mahoney, Sec.; Susan Allison, Administrative Secretary; Dennis Swan, Receptionist.

Marketing
Jon Loveless, Vice President; Gary Yost, Director; Jack Powell, Product Development Manager; Lisa Wehrer, Customer Support Director; Brian Sarrazin, Sales Manager; Pamela Grady, Customer Service Coordinator; Scot Tumlin, Technical Support.

Advertising Sales
John Taggart, Director
(For Area Sales Representatives, see page 84.)

General Offices
& Catalog Customer Service
(415) 957-0886
***Antic**, 544 Second Street*
San Francisco, CA 94107

Subscription Customer Service
(614) 383-3141
***Antic**, P.O. Box 1919, Marion, OH 43306*

Credit Card Subscriptions & Catalog Orders
(800) 443-0100 ext. 133
(Continental U.S. & Hawaii)

February 1987, Volume 5, Number 10

Subscriptions: One year (12 issues) $28. Canada and Mexico add $8, other foreign add $12. Action Edition (12 issues with disks) $99.95, all foreign add $25. (California residents add 6½% sales tax for disk subscriptions.

Editorial submissions should include text and program listings on disk and paper. Submissions will be returned if stamped, self-addressed mailer is supplied. **Antic** assumes no responsibility for unsolicited editorial material.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Antic is an independent periodical not affiliated in any way with Atari Corp. Atari is a trademark of Atari Corp. All references to Atari products are trademarked and should be so noted.

Antic is a registered trademark
of Antic Publishing, Inc.
An Information Technology Company

Copyright ©1987 by Antic Publishing.
All Rights Reserved. Printed in USA.

8-Bit "Vs." ST?

It's clear that right now the issue of greatest concern to **Antic** readers is the relative coverage of ST and 8-bit Ataris in these pages —especially now that Antic Publishing has begun issuing **STart: The ST Quarterly.**

In our July, 1986 "Best Of Both Worlds" statement, Publisher James Capparell pledged to "devote a minimum of 60 to 70 percent of each issue's editorial space to material for 8-bit owners" while "the rest of the editorial pages will carry timely and useful ST material."

During the following eight months, we have been serious about living up to this pledge. We are pleased that the previous torrent of worried "8-bit vs. ST" letters has slowed down to a steady trickle. But this whole controversy is obviously still very much on the minds of many **Antic** readers and now seems to be a good time to clear the air again.

Naturally, any new editorial policy needs time for fine-tuning. But we think that the evidence of the past eight months shows conclusively that a mixed 8-bit and ST magazine is still the best way for **Antic** to serve the needs of the majority of our readers.

Presently, **STart** offers in-depth material for serious ST programmers *and* power-users of commercial ST software *four times yearly.* The monthly **Antic** is, by definition, much more timely—and it has many more pages available over the course of a year. Because of its timeliness, the **Antic** ST Resource section features the most current reviews of significant ST products along with advance information about virtually all major upcoming ST products.

At the same time, **Antic** seeks to extend to the ST our successful five-year format of providing committed Atari hobbyists with useful and powerful type-in programs. From all our reader surveys and mail, we have learned that the first priority of **Antic** readers is to find out "how to do things better" with their computers—primarily in BASIC and secondarily in assembly language.

One way we now try to maximize the benefits of this format for *all* Atari owners is to consider whether programs we publish can be adapted to both 8-bit and ST computers. We've been able to do this at least once in every recent issue. This month, for example, *San Francisco Fogger* demonstrates how a dual 8-bit/ST program article uses costly editorial pages with top efficiency—enabling us to apply the conserved space for additional Atari coverage.

Also, **Antic** is now making sure to review all "universal" peripherals—such as printers, modems, hard disks, etc.—simultaneously for the 8-bit and ST. This can often provide unique additional insights. For instance, our December, 1986 review of the two new Atari dot-matrix printers pointed out that 8-bit users who own an 850-type interface would actually get a better deal with the identically-priced, but faster and more full-featured, SMM-804 ST version.

Antic Magazine published considerably more editorial pages during the past 12 months than we did during the previous year. In fact, the **Antic** you are holding is more than 40 pages bigger than the February 1985 issue. This increase is made possible because of advertising support from *both* 8-bit and ST suppliers.

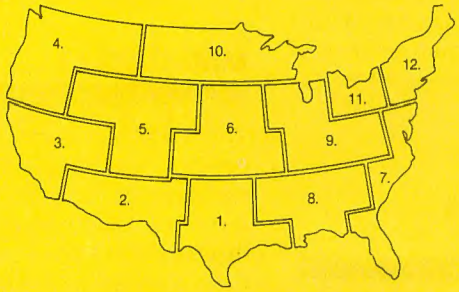
The bottom line is that we believe an international monthly magazine like **Antic** today cannot do as good a job of supporting Atari 8-bit computer users *or* ST users, if it doesn't support both.

Nat Friedland

Nat Friedland
Editor, Antic

Fly to Florida!

Scenery Disk # 7 covers the entire East Coast area from Philadelphia to Miami. The Florida coastline, from Cape Canaveral to Miami, is perfect for concentrated sight-seeing. Or fly to Washington DC, where scenery details include the Capitol Building, Pentagon, and Washington Monument. Whether seeking the intellectual challenge of Flight Simulator or the brute-force fun of Jet, you'll find this latest evolution of SubLOGIC scenery absolutely breath-taking!

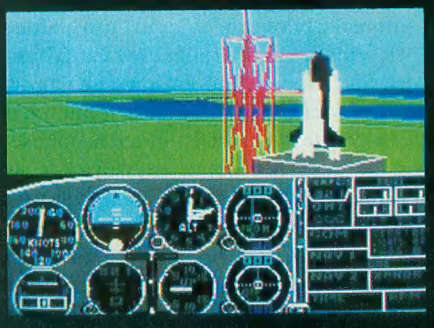


Scenery Disks now available: Areas 1-7
San Francisco 'STAR'
Central Japan

See your dealer. SubLOGIC Scenery Disks are available individually for $19.95. The six-disk Western U.S. set is available for $99.95. For additional product ordering information or the name of the dealer nearest you, call

subLOGIC Corporation
713 Edgebrook Drive
Champaign IL 61820
(217) 359-8482 Telex: 206995

ORDER LINE: (800) 637-4983
(except in Illinois, Alaska and Hawaii)
Open 7 AM to 9 PM Central Time



CIRCLE 058 ON READER SERVICE CARD

V-GRAPH

I enjoyed V-Graph (**Antic**, November 1986), but it didn't work immediately with my AtariWriter. Tell your readers to:

1. Erase the printer controls in the "heading" line.
2. Put the last digit of your data in column 9.
3. Put a [RETURN] in column 10.

If someone modifies V-Graph to include a variable x-axis, please let me know.

Karl Wilks
Richmond, CA

SMARTEAM MOVES

The service center for the SmarTeam modem has moved to: 19205 Parthenia, Suite J, Northridge, CA 91324. (818) 886-9726. SmarTeam honors a two-year warranty on modems with a dated sales receipt.—ANTIC ED

THUNDER! REPLIES

I'd like to point out some misconceptions in Steven DiMeo's review of Thunder! (**Antic**, November 1986). He felt that only 200 words in a supplementary dictionary is a drawback because he would like to include contractions. But that's why the user can add *thousands* of words to the *main* dictionary.

Also, the concept of "memory-resident program" should be cleared up. Once the machine is booted with the Thunder! accessory, it becomes memory-resident. The original disk is no longer used, so whether or not it fits on a disk with 1st Word is irrelevant.

Thunder! is primarily a spell-checker—so why complain that it can't tell the difference between "to" and "too"? Since neither is spelled wrong, how can Thunder! find an error? Proofreading isn't a part of Thunder!'s domain, nor is it intended to be. Suggesting that Thunder! is not useful because it's not a thesaurus is as meaningful as saying that a car isn't useful because it's not a boat.

The restriction of ignoring only 20 repeated words has been dropped as of version 1.3. Owners of earlier Thunder versions can upgrade to 1.31 free by sending their original disks to us.

Mark Skapinker
Author of Thunder!
Batteries Included

GARBAGE

I have an 800XL, a 1050 disk drive, a U-Print Model A interface, a Star NX-10 printer and an XM301 modem. With the modem connected, I get the occasional line of garbage printed out. If I disconnect the modem, the printer works fine. Here's a sample of the garbage: @WNe@WNe. What can I do?

Ron Feulner
North Charleston, SC

We tried using all of the above components together—except that we don't have a U-Print interface—and had no trouble. You might try borrowing another interface (Atari 850, P:R: Connection, etc.) at a users group meeting and see if that makes a difference. @WNe@WNe.
—ANTIC ED

ALPHA PRODUCTS

Alpha Products Inc. assures ***Antic*** *that it currently sells ST monitor connectors and cables, despite contrary information in the October 1986 I/O Board. Alpha is at 5740 Corsa Avenue, # 104, Westlake Village, CA 91362. (818) 889-9304.*
—ANTIC ED

ARSON DB

I'm a special agent for the United States Treasury, specializing in cases of criminal bombing and arson for profit. We plan to use a customized database to compare suspects, methods of operation, victims, types of devices, etc., to help solve our investigations and identify arsonists, bombers and their potential targets and to cross-reference vehicles and telephone numbers to identify those who contract out for the "jobs."

As we know of no other law enforcement agency doing a computer program like this, we must design the database from scratch. Some big city fire departments use databases to keep track of arsons or fires in general, but they don't, to our knowledge, use them for both historical and prediction work.

David Grace
Pittsburgh, PA

WEFAX VALUES

In attempting to build the WEFAX interface (**Antic**, September 1986), I noticed that the values for C1 and C2 were omitted.

Robert Franke
Bristol, WI

The comma after C2 in the parts list indicates that C1 to C4 all use capacitors .1uF, #272-1069.—ANTIC ED

MIDI CABLES

The ST's MIDI-out port has MIDI-through on pin 3. Most MIDI sequencers and controllers don't. This won't be a problem unless you're using inexpensive MIDI cables that have pins 3 and 5 soldered together. Casio keyboards are unaffected by this, but Yamaha keyboards take exception to it. If you're having trouble, you can either replace your cables or remove the solder connection between pins 3 and 5 on both ends of your cables. Credit for this fix should go to Malcom Cecil of Electronic Music Publishing House.

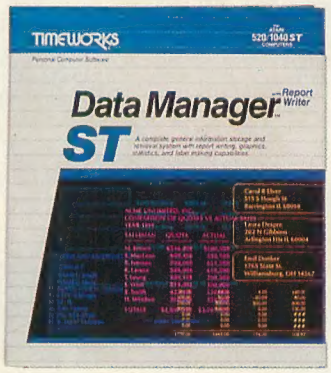
Marcel Van Someren
Los Angeles, CA

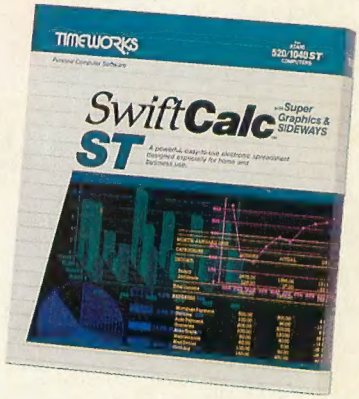
Antic *welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

Send letters to: Antic I/O Board, 524 Second Street, San Francisco, CA 94107.

IF YOU CAN FIND A BETTER ATARI ST PROGRAM WE'LL BUY IT FOR YOU!*

Full GEM interfacing, convenient Quick Keys, and many other unique features of our own.





WORD WRITER ST with Spell Checker

A full-featured, professional word processing system for home and business use. You get:

- **A Continuous Spell Checker** that identifies misspelled words *as you are typing* your document.
- **An additional 85,000 word, built-in Spell Checker** that checks your entire document – at your command!
- **On-Screen** underlining, *italics* and **boldface** – as you write.
- **An Outline Processor** that quickly organizes notes, facts, and ideas in convenient outline format.
- Every other feature you'll need for everyday word processing, plus most of the features found in more expensive programs.

DATA MANAGER ST with Report Writer

A complete general information Storage and Retrieval System with report writing, business graphics, and label making capabilities. Plus, you get:

- **Flexibility** that allows you to modify your data base structure by changing the size or position of fields of information – at any time.
- **A complete Report Writer** that generates customized data reports. You specify the title, location, and sequence of each column.
- **An extensive Business Graphics Package** with pie charts, bar charts, line plots, point plots, hi-lo-close stock price plots, and more.
- **A Label Maker** that prints your important information onto all types of labels.

SWIFTCALC ST with Sideways

A state-of-the-art spreadsheet for home and business use. You get:

- **8192 rows and 256 columns provide up to 2,048,000 cells** (locations) in which to place information.
- **Super Graphics** graphically display and print out business information using pie charts, bar charts, line plots, point plots, hi-lo-close stock price plots, and more.
- **Windows** allow you to work on two sections of your spreadsheet simultaneously.
- **Sideways** lets you print all columns on one continuous sheet . . . *sideways*.
- **Help Screens,** help you use the program – without referring to your manual.
- **Formatting** – Choice of five formats: Decimal (up to 9 places); Graphics; Exponential Notation; $ Sign & Commas.

You Get Our Liberal Upgrade and Exchange Policy – Details are inside every Timeworks package.

With Timeworks you get more than software. . .

You Get Our Customer Technical Support Team – free to all registered users.

With Timeworks you get our Money Back Guarantee*

If you can find anything that works better for you – and it's available – we'll buy it for you. Details inside every Timeworks package.**

TIMEWORKS®

More power for your dollar

Timeworks, Inc. 444 Lake Cook Road, Deerfield, Illinois 60015
312-948-9200

For the Atari 520/1040 Computers.***

Suggested Retail List Price:
$79.95 each

Available now at your favorite dealer, or call Timeworks.

TO ORDER CALL:
1-800-535-9497

These Programs INTERFACE with Each Other

© 1986 **Timeworks**, Inc. All rights reserved.

** Offer expires 90 days after date of original purchase.
*** Registered trademark of Atari Corp.

CIRCLE 069 ON READER SERVICE CARD

Christine Walker

Qua

BY JEREMY BIRN

Quatro is a colorful computerized version of Blind Man's Morris, the traditional strategy game where you beat an opponent by lining up four pieces in any direction. Compete against your Atari or a human player. This short BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.

Quatro is a slick computer adaptation of Blind Man's Morris or "Connect-4," the popular strategy game where you compete to line up four squares of your color—horizontally, vertically, or diagonally. You can challenge either your Atari (a truly formidable player) or a human opponent.

Type in Listing 1, QUATRO.BAS, check it with TYPO II and SAVE a copy before you RUN it.

SPECIAL INSTRUCTIONS

After you SAVE a corrected, complete version of Quatro, you need to follow the special instructions below:

These special instructions are nec-

tro

essary because Quatro is one of those BASIC programs that will not RUN properly if the lines weren't typed perfectly and in the proper order. But the following sequence of LIST, NEW, ENTER and SAVE commands prevents this problem. (*For a more detailed explanation of the phenomenon, read about Variable Name Tables in* Your Atari Computer *by Lon Poole, $17.95, Osborne/McGraw-Hill, Berkeley, CA.* —ANTIC ED)

1. LIST the program to disk or cassette. Be sure the TYPO II program has been removed before you do this.
2. Type NEW.
3. ENTER the program back into the computer.
4. SAVE the program to disk or cassette with the SAVE command.

When you RUN Quatro, first you'll see the title displayed while six different-colored horizontal "tracks" are drawn on the screen. (Don't worry, Quatro works with monochrome or black-and-white screens too.)

STICK OR COMPUTER

Black and White, the text lines at the bottom of the screen, let you choose the color used by each player, and whether you or your Atari control each color. Move the joystick up and down to switch between Black (player 1) and White (player 2).

Now, move the joystick from side to side to choose who controls each player. You may pick from Stick 1, Stick 2, the Computer, or Random moves.

For example, to play a game against a friend and use two joysticks, one line should be Stick 1 and the other should be Stick 2. To play against yourself (or a second person) using only one joystick, set both Black and White to Stick 1. You can also play against the computer, or have your Atari play against itself.

When you set Black or White to Computer mode, Quatro will use a challenging "artificial intelligence" routine to select the best possible move against you. Quatro bases its choice on the current state of the game board, the relative advantages of each legal move, and any negative implications such a move might present.

Pit your Atari against itself for an exciting demonstration of these routines. Just set both Black and White lines to Computer.

Quatro also has a random mode, in which the computer randomly chooses its move from all legal moves. The advantage here is that your Atari is easy for you to beat in this mode.

HOW TO PLAY

After you establish who's playing who, press the joystick trigger or the [START] key to begin playing. The bottom of the screen shows the move number and whose turn it is.

When the game calls for Stick 1 or Stick 2, move the appropriate joystick up or down to control a flashing yellow stripe. Place the stripe in the center of a track and press the joystick trigger. A square in your color will appear at the far right end of that track.

Succeeding squares in that track will always appear in the rightmost empty position of the track, until the track is filled. If all six tracks are filled without anyone forming a row of four, the game is tied. You can abort a game anytime by holding down the [SELECT] key.

BEAT YOUR ATARI

After your Atari randomly choses a first move, it will take a few seconds to look at each legal move. One way to beat the computer is to set up two possible winning tracks. The computer can block only one of them, so you can win in the other. Another way is to set up a track where you *could* win, but if the computer blocks you, you could also win in the space made available to the left of the computer's block.

No single pattern always works. To learn more about how your Atari plays, watch it compete against itself in various combinations of Computer and Random modes. You can learn a lot about the patterns of the game itself by watching Random vs. Random.

PROGRAM TAKE-APART

Quatro uses a modified Graphics 7 screen. Instead of changing the color of the whole background at once, as with a SETCOLOR command, the background color of each text or graphics stripe is set independently through a modified display list.

Throughout the program, a Display List Interrupt (DLI) updates the color of each stripe, one at a time. The DLI gets the appropriate color values from a lookup table which begins at the memory location contained in the variable SET. By POKEing different values into this table, the program can draw multicolored stripes in the background and highlight a text stripe to show whose turn it is.

The DLI routines occupy lines 30000 to 31000. Advanced programmers may wish to use this stand-alone subroutine in their other programs—which would call the routine with a GOSUB 30000 statement.

This DLI routine occupies the low part of Page Six and is compatible with most graphics modes. It will also work with many modified display lists.

You can now independently set the color of each stripe by using the command POKE SET+Y,COLOR. In this command, Y is the row number (the top row is row zero), and COLOR is the appropriate POKE value of the color to be used.

continued on next page

Line up 4 squares before your Atari does

COPY II ST™

BACKUP PROTECTED SOFTWARE FAST.

From the team who brought you COPY II PLUS (Apple), COPY II PC (IBM) and COPY II MAC (Macintosh) comes a revolutionary new copy program for the Atari 520 and 1040 ST computers.

- Copies many protected programs—automatically. (We update COPY II ST regularly to handle new protections; you as a registered owner may update at any time for $15 plus $3 s/h.)
- Supports single and double sided drives.
- Includes both a fast sector-based copier and a true bit copy mode for protected disks.

Requires an Atari 520 or 1040 ST computer with one or two drives.

Call 503/244-5782, M—F, 8—5 (West Coast time) with your VISA in hand. Or send a check for $39.95 U.S. plus $3 s/h, $8 overseas.

$39.95

Central Point Software, Inc.
9700 S.W. Capitol Hwy. #100
Portland, OR 97219

Central Point Software INCORPORATED

Backup utilities also available for the IBM, Apple II, Macintosh and Commodore 64.
This product is provided for the purpose of enabling you to make archival copies only.

CIRCLE 016 ON READER SERVICE CARD

By default, these colors will be put into color registers two and four. This colors the background of both graphics and text. To use other color registers, POKE CA and CB with the appropriate register number, printed below. (See line 70 for an example of this technique.) If you only want to control one register, set both CA and CB to the same register number.

The codes for the registers are:

18-21 Player/Missile Colors
22 Register 0 (Default Yellow)
23 Register 1 (Default Green)
24 Register 2 (Default Blue)
25 Register 3 (Default Red)
26 Register 4 (Default Black)

This routine is shorter, easier to use and more flexible than a "preset" DLI in most situations. In fact, to achieve the same effects, you would usually need a chain of several DLIs.

Jeremy Birn is a student from Delmar, New York and Quatro is his first publication in **Antic**.

Listing on page 94

"Don't even think about another C compiler"

- Mike Fleischman, ANTIC: The Atari Resource, Sept. 1986

Megamax Professional C Development System For The Atari ST
Rated #1 C compiler by ANTIC, Compute!'s Atari ST, and Start: The ST Quarterly

- Full Kernighan and Ritchie implementation
- Single pass compilation
- Full access to GEM routines
- Graphical shell
- Intelligent Linker produces efficient native code
- Extensive documentation
- Disassembler
- C programmer's editor
- Code improver
- Developer support included
- Resource construction program
- Create desk accessories
- In-line assembly and structure passing
- Object file librarian
- Six times faster than Atari Development Package
- Develop on single drive 520 ST
- The compiler chosen for development by:
  Batteries Included
  FTL Games
  Supra Corp.

$199.95
Mastercard, VISA, American Express & C.O.D. accepted

Megamax Development Systems

Megamax, Inc. • Box 851521
Richardson, TX 75085
(214) 987-4931

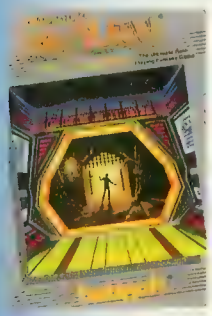
CIRCLE 041 ON READER SERVICE CARD

LOYALTY PAYS

We at Datasoft recognize the value of loyal customers and would like to show you our appreciation. Through our Frequent Purchase Program, you can earn credits toward valuable gifts everytime you buy a Datasoft game.

That's double earnings, because after playing one of our games, you won't be able to resist what we've got in store for you with our new line-up of products! The excitement is high at Datasoft with the most impressive product line in the history of our company! We've got something for EVERYONE!

For all you adventure lovers, we've got challenging graphics-text adventures that take you through the streets and alley ways of London in 221 B Baker Street, to the fantasy world of The Never Ending Story, and back to the wild west of Gunslinger.



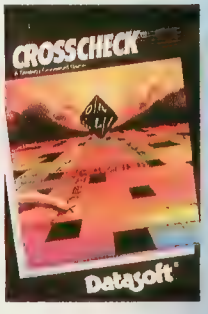
For our role-playing fanatics, Alternate Reality—The City and The Dungeon—allow you to get away from it all. It'll be hard to put the joystick down once you start playing Mercenary, a unique adventure and flight simulation product in 3D vector graphics.

For the armchair warriors, there's no better way to play Commander-in-Chief than Theatre Europe, a strategy war simulation game that puts you on the actual battlefield.

Get the whole family together to play Mind Pursuit and Crosscheck for hours of fun for both children and adults.

Enjoy our games while earning credits at the same time! Complete details of our Frequent Purchase Program are enclosed in each game, or call us at 818/886-5922 for more information about this program.

Double your earnings and fun by purchasing these Datasoft games and see how Loyalty Pays.



Datasoft®

We Challenge You™

19808 Nordhoff Place, Chatsworth, CA 91311 (818) 886-5922

Mercenary is a trademark of Novagen Software Ltd. Theatre Europe is a trademark of PSS. Mind Pursuit & Gunslinger are trademarks of IntelliCreations, Inc. 221 B Baker Street is a registered trademark of Antler Productions. The NeverEnding Story is a trademark of Neue Constantin Filmproduktion GmbH. Alternate Reality is a registered trademark of Paradise Programming Inc. Crosscheck is a trademark owned by and used under license from TSR, Inc.

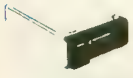
LYCO COMPUTER

MARKETING & CONSULTANTS INC.

HARDWARE

INTERFACING

Microprint	39.95
XETEC AT	39.95
Atari 850	109
PR: Connection	CALL



DRIVES

Indus GT Atari	179
Atari 1050	129
SF 314	219
SF 354	159

MODEMS

ATARI XM 301	39.95
Supra 300	39.95
Supra 1200	149.95
U.S. Robotics 1200	189
Avatex 1200	89

MONITORS

CALL FOR AVAILABLE MODELS FOR YOUR SYSTEM!

"WE MAKE YOUR COMPUTER FUN TO USE!"

ATARI SOFTWARE

ATARI

520 ST mono	CALL
520 ST color	CALL
SHD 204 20meg	NEW
1040 ST	CALL
130 XE	CALL
65 XE	CALL
1050	CALL
SF 354	CALL
SF 314	CALL

MICROPROSE

Silent Service	22.75
F-15	22.75
Conflict in NAM	24.75
Kennedy approach	22.75
Top Gunner 3 games	19.75
Gunship	**21.95**

INFOCOM

Leather Goddess	20.75
Moonmist	20.75
Trinity	20.75
Hitchhiker's Guide	20.75

EPYX

Karate champ	20.75
Apshai Trilogy	24.75

SUBLOGIC

Flight Simulator	29.75
Jet	34.75

O.S.S.

Basic XE	44.95
Basic XL	32.95
Action	44.95
Mac 65	44.95
Tool Kits	16.95

subLOGIC

ACTIVISION

synapse

INFOCOM

EPYX

MicroProse

OSS™

SSI

Broderbund Software

ACTIVISION

Hacker	15.75
Ghostbusters	15.75
Great AM Race	15.75
Music Studio	22.75

SSI

Wizards crown	24.75
Gettysburg	34.75
Gemstone healer	24.75
Phantasie	24.75

BRODERBUND

Print shop	24.75
Graphics Lib. EA	15.75
P.S. Companion	CALL
Karateka	17.75

ACCESS

Leader board	24.75
Tournament Disk 1	15.75
Action Pak	15.75

DUST COVERS

ATARI

520 ST	11.95
130 XE	6.99
65 XE	6.99
1050	6.99

JOYSTICKS

Bat Handle	16.75
Boss	11.99
Super 3-way	19.99
TAC-3	9.95
Slick Stick	6.95
Economy	5.95
Epyx 500	16.95

ST SOFTWARE

TIMEWORKS

(ST)

Wordwriter	56.75
Swiftcalc	56.75
Data Manager	56.75
Super Graphix	44.95

ACTIVISION

Basketball	28.75
Music Studio	34.75
Hacker	26.75
Little People	29.75
Paintworks	40.75
Hacker II	29.75

MICROLEAGUE

Baseball	NEW!

EPYX

World Games	24.75
Wrestling	NEW!

MICROPROSE

F-15	24.75

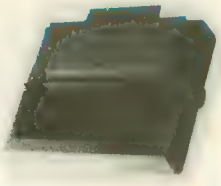
ACCESS

Leader Board	24.75
Tournament Disk 1	15.75

NX-10

star MICRONICS INC

ONLY THE STAR NX-10 GIVES YOU FULL FRONT PANEL CONTROL IN A 120 CPS DRAFT / 30 CPS NEAR-LETTER-QUALITY PRINTER. AND THE QUALITY AND RELIABILITY STAR IS FAMOUS FOR.



$214

RISK FREE POLICY

In stock items shipped within 24 hours of order. No deposit on C.O.D. orders. Free shipping on prepaid cash orders within the continental U.S. Volume discounts available. PA residents add sales tax. APO. FPO. and international orders add $5.00 plus 3% for priority mail service. Advertised prices show 4% discount for cash, add 4% for MasterCard and Visa. Personal checks require 4 weeks clearance before shipping. We do not guarantee compatibility. We only ship factory fresh merchandise. Ask about UPS Blue and Red label shipping. All merchandise carried under manufacturer's warranty. Return restriction applicable. Return authorization required. All items subject to change without notice.

TOLL FREE 1-800-233-8760

Customer Service 1-717-494-1670

AMERICA'S MAIL ORDER HEADQUARTERS!

CIRCLE 039 ON READER SERVICE CARD

LYCO COMPUTER

MARKETING & CONSULTANTS INC.

PRINTERS

STAR MICRONICS

NX10c	219
LV12-10 (New)	175
NL-10	259
NX10	209
NB15	939
SG-15	CALL
SD-15	389
SR-10	395

CITIZEN

120-D	179
MSP-10	285
MSP-15	385
MSP-20	325
MSP-25	485
Premier 35	CALL

"While they last!!"

JUKI

Juki 6100	CALL
Juki 5510	CALL
Juki 6300	CALL
RS-232 serial board	55

LEGEND

808	159
1080	199
1380	229
1385	289

EPSON

LX86	229
FX85	359
DX10	149
EX800	499
EX1000	699
HS80	CALL
FX286	479
LQ800	529
LQ1000	729

SILVER REED

EXP 420 P	209
EXP 600 P	489
EXP 800 P	649
EXP 770	740

Panasonic

1080 I
$199.00

EPSON®

LX-86
$229.00

PRINTERS

PANASONIC

1080 I	199
1091 I	269
1092 I	279
1592	419
1595	549
3131	249
3151	SAVE
108 APIIC	239

TOSHIBA

321 P/S	479
351 sheet feeder	529
P 341P	669
P 341S	699
P 351+	999

DIABLO

D25	549
P-32 CQ1	699
635	1029
D-80 1F	2395

BROTHER

HR-15XL-P	349
1509	409

SEIKOSHA

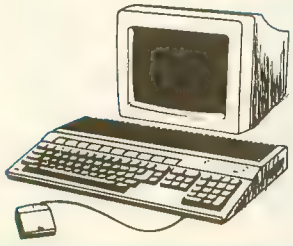
SP-1000 A centronics	185
SP-1000 VC (E-64)	*165*
SP-1000 IBM	185
SP-1000 AS RS-232	185
SP-1000 AP, APIIc	185
BP-1300	469
BP-5200	649
BP-5420	999
Color Kit	119
BP-5420 ribbon	12 50
SP-1000 ribbon	8 50

OKIDATA

Okimate 20 ST	199
292	449
293	599
120 NLQ	225
182	214
192+	365
193+	559

1040 ST — *COMPARE OUR SERVICE!* — 520 ST

1040
Mono System
with
SP-1060 A printer
$975.00



- ☆ *Access to nation's largest inventory.*
- ☆ *All merchandise factory fresh.*
- ☆ *Free shipping on prepaid cash orders.*
- ☆ *Compare our prices.*
- ☆ *Easy toll free access.*
- ☆ *Air freight service available.*
- ☆ *Full accessory line.*
- ☆ *24 hr. shipping on in-stock items*
- ☆ *Offer C.O.D. with no deposit.*
- ☆ *Widest selection of name brand products.*
- ☆ *Full mfg. warranty applies.*
- ☆ *Courteous and experienced staff.*
- ☆ *Trained customer service dept.*
- ☆ *PO's accepted from educational institutions.*

ATARI
20 Meg Hard Drive
SHD 204
$649

520 Color System
with
1080 I Printer
$999.00

TOLL FREE 1-800-233-8760

in PA 1-717-494-1030

or send to
Lyco Computer
P.O. Box 5088
Jersey Shore, PA
17740

MasterCard VISA®

CIRCLE 039 ON READER SERVICE CARD

HOURS
Mon-Thur 9 AM-8 PM
Fri 9 AM-6 PM
Sat 10 AM-6 PM

How To Write Books With Your Atari

by DAVID WADE, Author of 15 published novels

"It's great! I love it," gushed the movie producer, "but do you think you could change the ending back to the way you first wrote it? And maybe add in your other idea for the opening?"

Could I do that? Sure, I could—but I was smiling through gritted teeth.

Eighteen months ago, on the strength of my involvement in the best-selling paperback action series *The Executioner*, I had been asked to prepare a treatment for a tough-guy action movie. A treatment is the first version of a film script, rather like a very long short story. This latest draft ran to 90 pages, and the revisions the producer wanted were the fourth set of changes he'd asked for in as many weeks. It meant another round of cutting, pasting, rewriting and *then* retyping this whole new draft from scratch.

Even to a computer-phobe like me, it was now obvious that I needed a word processor. I went looking for a computer that (a) cost less than the down payment on a large house, (b) had a wide range of software applications and games, (c) and didn't require an advanced degree in computer science to operate it.

Today my cluttered office includes an 130XE, an 800XL (picked up on sale as a back-up computer), a 1030 modem, a single 1050 drive, both amber and color NEC monitors, and a Roland PR-1011 printer. There's also a raft of software. I seem to be collecting word processors even faster that I accumulated typewriters during my years B.C. (before computing). I now own AtariWriter and AtariWriter Plus, HomeWord, Word Magic, G.T. Estate WP—and my favorite workhorse, PaperClip.

This system handles my correspondence, accounts, and a schedule (when I remember to update it). I used the Atari to write a film treatment, two long speeches, my lectures as writer-in-residence at Lynchburg College in Virginia, several magazine articles (including this one) and a couple of short thrillers. Right now I'm two-thirds of the way through a 600-page epic about the French Foreign Legion —*Seven Flames*, to be published by Arrow Books, London.

Oh yes, I've also had hours of fun chasing round Castle Wolfenstein and trying to force Colossus Chess to resign.

You can attempt even quite ambitious writing projects with a modest computer set-up. Don't put off writing that sword-and-sorcery saga or grand space epic just because you don't yet have a hard disk, mouse, and real-time thesaurus. Boot up your word processor, slip a fresh disk in the drive, and go for it!

YOUR NOVEL

Let's pretend that we're writing a popular novel together and I'll take you through the process step by step.

You have decided to tell an entertaining yarn about two young fliers who went over to France during World War I to join the famous Lafayette Escadrille, and maybe they meet a nurse over there and both fall in love with her. Hey, this is beginning to sound like a proper story already!—we'll call it *Where Eagles Fly.*

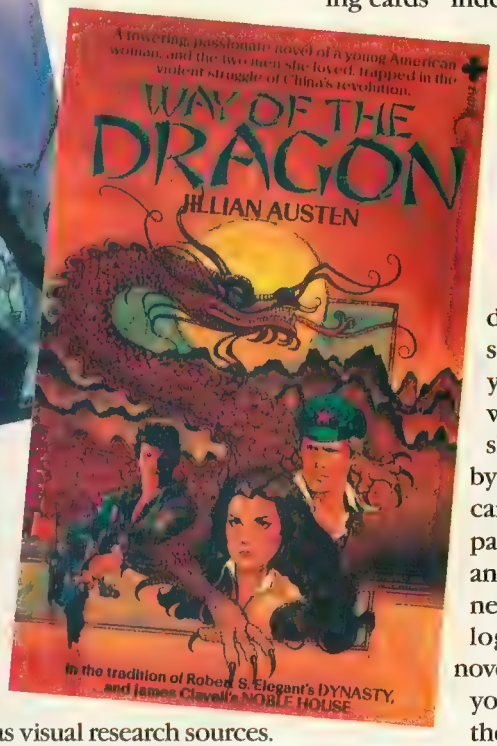
Every story starts with an idea. It might be a smashing opening, a surprising twist for the finale, a memorable character, or whatever. Well, we've already got a working title and the basic premise for *Where Eagles Fly.* Now comes the job of fleshing out our lead characters and putting them through all sorts of conflicts and complications. We've got to start building up a plot outline.

If you've got an outliner or "idea processor," that's great! If not, you can always use your word processor. Sure, you won't have the same versatility for grabbing topics, hiding text, and so on, but through judicious use of your tab settings and block moves you can create the initial outline on most word processors.

Concurrently with this plot development, you must also begin your research. Some of this will require manual note-taking and photocopying—Atari doesn't have a laptop which we can take into the library! Use "card index" software or a simple database to build up a bibliography of the books you've checked and the ones you still want to get hold of. Add notes of the relevant material and page numbers.

At this point you can open up some word processing files to keep lists of potential names, both for characters and places (you'll be surprised how many names you use up in the course of a book). And develop profiles of all the leading characters.

Some of you might be lucky enough to cadge a flight on a real biplane, or visit with enthusiasts who have collected memorabilia of WWI aviation. Anyway, there's always software like Flight Simulator II, F-15 Strike Eagle and Solo Flight which will give you a flavor of piloting a small plane. And don't overlook videotaped movies such as "Wings", "The Blue Max," and "Aces High" as visual research sources.



You'll be gathering details on words and expressions used at the time, notes on what people wore, what they ate, descriptions of places, specifications of planes and weapons, tactics used in aerial warfare and the general historical overview. All this information must be broken down into workable database or WP file entries.

As the research accumulates, it will give you fresh ideas for the plot and cause you to revise earlier developments. And, as the plotline evolves, you'll find out where you still need to do more detective work. By now, on carefully indexed and backed-up disks, you're beginning to build up the files you'll need for the actual exercise of storytelling.

RESEARCH PACKAGES

You should now have a reasonably detailed plot outline, the names and imaginary biographies of all your principal characters, details on the places, the units, the planes, the history of early air warfare, and so on.

Some material like maps, actual newspaper clippings, photos and diagrams will remain in their original form or as photocopies. But much of the material will now exist as dozens, probably hundreds, of electronic "filing cards" indexed by topics such as Locales, Ranks & Uniforms, Jargon & Slang and so on. *Where Eagles Fly* is beginning to take shape.

Next, this whole mass of information needs to be broken down and resorted in story order. Following your plot outline—which at this point should be in a chapter-by-chapter format—you can examine each small package of research data and decide where it's needed in the chronological order of the novel itself. In some cases, you'll want to duplicate the entries.

If you have a database which is compatible with your word processor, you can transfer your reorganized research directly into WP files. If not, you can print it out and work from the hard copy.

Does all this spadework sound rather tedious? It really isn't—often it's the most fun part! But now you're about to discover why it'll save you a lot of wasted time and heartbreak... Believe it or not, you're ready to start the rough draft of *Where*

continued on next page

Eagles Fly.

With a sheaf of maps, photos and hard copy data printed out in story order sitting at the side of your desk, turn on the word processor and begin to juggle around with the opening sentence. You still can't do that? Skip it—you'll come back later—and plunge right into the second paragraph.

Here's why I use PaperClip—it has the vitally important function of dual text windows. That is, it'll handle two files at once (So does the new First XLEnt Word Processor, which I'm looking forward to adding to my collection.)

Keep a "working disk" in your drive which contains a customized version of your word processor, complete with special macros for your novel, the appropriate section of the outline, and short separate files on the major characters and research. This still leaves enough room to automatically save the draft as you create it. Finished chapters or sub-sections can be saved and *backed-up* on other clearly labelled disks.

If your word processor doesn't have an autosave function, it's all the more important to make back-ups as you go along! If you don't have split screen capability, then all the research material will have to exist in hard copy form right next to your keyboard. With PaperClip, I call up the outline or chronological research notes on the bottom screen, while I begin to tell the story on the top screen.

There is no longer any excuse for not getting on with your big writing project. All the information on characters, background, technical stuff, etc., appears just as fast as you can move the cursor or load the next file. All you need to do is concentrate on what's right in front of your eyes!

You don't need files that stretch from here to Timbuktu. They are unwieldy to manipulate and very costly if you ever make a mistake. An 800XL with PaperClip provides a very workable file length of about 19 or 20 double-spaced pages, which is more than enough for a fair-sized chapter.

Don't worry about the whole house, just concentrate on the building blocks. Those chapters will keep on piling up, even as you focus your attention simply on the section at hand, and pretty soon you'll realize you've completed a first draft. Now the real job of writing begins.

SPELLING CHECKERS

Spelling checkers are dandy tools for picking out all your inadvertent typos as well as genuine spelling errors. Check each chapter carefully—cutting, revising, and polishing as you go. Now you can step back and look at the story as a whole. Tighten it up, make it move, smooth out the rough edges.

In this phase, the word processor really comes into its own. Everything from trying out block moves and "undoing" them, to instantaneous word counts is at your disposal during rewriting. A handsome manuscript of *Where Eagles Fly* will be ready to make the publishing rounds a lot quicker than you might think.

Of course, the computer can be used for a lot of administrative tasks as well. A spreadsheet can chart your production logistics, or keep track of all your expenses. (Don't forget, the equipment itself becomes a tax deduction if you're using it for professional purposes.) And, finally, the spreadsheet can add all the royalties which will eventually come rolling in.

Yes, it would be a little easier with a 20Mb hard disk, online thesaurus, and built-in style checker. The system I've outlined for you here could be enhanced. But to say you can't possibly get going on your own project (and *Where Eagles Fly* can be adapted just as easily to a Viking swashbuckler or an industrial espionage thriller, etc.) without all the very latest gizmos is the high-tech version of "sharpening pencils" to keep from doing any real writing.

I know that commercial books can be written on the Atari. I've done it. And so can you!

David Wade has written more than 15 paperback novels, under almost as many pen names (from "Diane Hunter" to "Alan Bomack"), with combined sales of over a million copies.

NOW, PLAY
CHESS
AGAINST YOUR ST™
WITH TECHMATE™

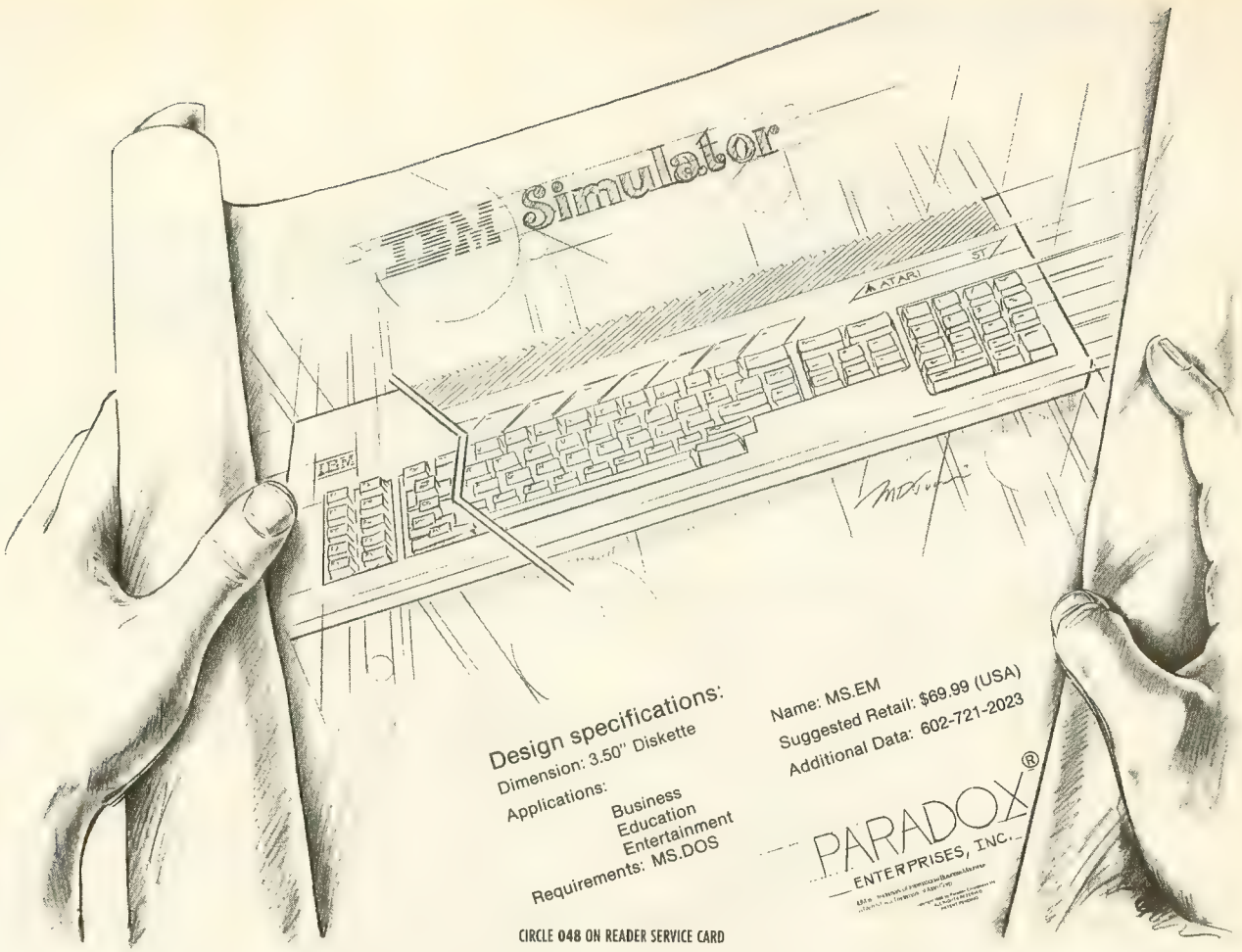
- IMPECCABLE GRAPHICS
- TWO ON-SCREEN CLOCKS
- FULLY MOUSE-DRIVEN PLAY
- ADVANCED 68000 ALGORITHM

TECHMATE™
Version 1.1 $ 49.95 Postpaid
WORKS IN COLOR & MONOCHROME!
USER'S GUIDE * WARRANTY
NOT COPY-PROTECTED

Send Check or Money Order To:
szabo software
P.O. BOX 623
BORREGO SPRINGS, CA. 92004
OR CALL: (619) 767-5058
FOR VISA OR MASTERCARD ORDERS
WE SHIP SAME DAY!

CIRCLE 059 ON READER SERVICE CARD

NEW ANTIC CLASSIFIED ADS
"Garage sale" that reaches 100,000 Antic readers. Goodies galore for your Atari!



CIRCLE 048 ON READER SERVICE CARD

VIP Professional™

The New Generation Spreadsheet

Spreadsheet, Database, Graphics and Macros With Total Lotus 1-2-3™ Functionality

VIP Professional Professional was modeled after the powerful best-selling Lotus 1-2-3. It not only has the same commands and features you can also type the same keys to do the same things. It can also read and write Lotus files and run all Lotus macros. So you have immediate access to thousands of worksheet models, hundreds of macro applications, tens of books, scores of training courses, loads of user groups, and bulletin board services to help you make the most of Professional, and share data with the rest of the business world.

Mouse Interface You may elect to use the keyboard for all commands, but Professional also provides a full featured mouse interface with Icons, Dialogue Boxes, Pull-down Menus, Mouse Ranging, and Scroll Bars. This makes command selection, movement in a sheet, range selection, split screen use, and a score of other functions much more intuitive and easy to use. What were once complex commands with Lotus are now only a mouse click away.

1. Spreadsheet Nothing is left out of this giant 256 column by 8192 row spreadsheet. You get variable column width, split screens, frozen titles, sorting, file combine and extract, copy, move, range naming, local and global cell protection, total printer control, and over 50 special functions to make worksheet creation a snap. And Professional supports up to four megabytes of memory – when you need real power!

2. Database Professional includes a powerful data manager to help you arrange, store and analyze information about your home or business. It allows up to 8192 records, with up to 256 fields, and has commands for sorting, data queries and statistical analysis.

3. Graphics With Professional's presentation graphics you can give shape to your figures with five different types of graphs: pie chart, bar, stacked-bar, line and XY graphs. With the many options available you can decorate your graph just about any way you wish. You can also print presentation-quality graphs with different fonts, sizes – and colors too!

Macros Professional features macros for automating repetitive tasks. Macros also allow you to *program* Professional for doing your accounting, inventory control, even school work.

Just Minutes to Learn Professional comes with a user-sensitive handbook for the newcomer. And help is built right into the program. With the handy tutorial you will be able to create your first worksheets in just minutes.

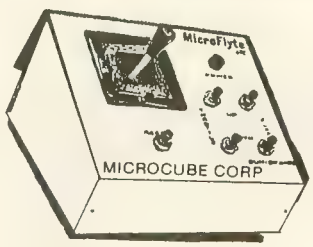
* Features may differ on different versions. Consult your dealer for further details.
* SCO Professional, which XENIX Multiuser systems contact Santa Cruz Operation 800 626 UNIX (408) 425 7222

FOR MORE INFORMATION CALL
1-416-479-1880
U.S. ORDERS SHIPPED FROM U.S.

ISD MARKETING INC.
20 Steelcase Road, Unit 12
Markham, Ontario, Canada L3R 1B3

CIRCLE 032 ON READER SERVICE CARD

The MicroFlyte JOYSTICK



Increase your flying enjoyment with the Micro Flyte Joystick—the ONLY fully proportional continuously variable joystick control for Flight Simulator II.

Only **$59.95** (+ $4 shipping)

OUR USERS SAY IT ALL:

"...it transforms an excellent program into a truly realistic flight simulation system." B.A.C.E.

"FSII flies like the real thing with your joystick and software driver! Congratulations on bringing a superior product to the market." D.F.

"Simply put the MicroFlyte Joystick helps you 'fine tune' your flying." ANTIC

Driver Disk for F15 now available for $9.95.

NAME_____

ADDRESS_____

CITY/STATE/ZIP _____

CARD NO. & EXP. DATE_____

FSII is a trademark of Sublogic, F15 is a trademark of Microprose

SEND TO: MicroCube Corp., P.O. Box 488, Leesburg, VA 22075
(703) 777-7157

MasterCard VISA

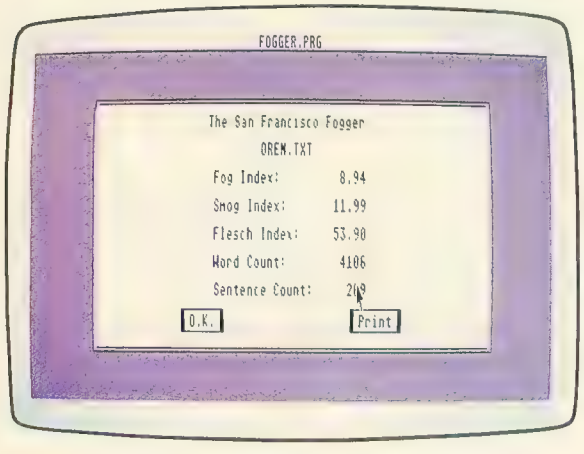
CIRCLE 043 ON READER SERVICE CARD

The San Francisco Fogger

Rate your writing-with 8-bit or ST

BY CHARLES JACKSON, ANTIC TECHNICAL EDITOR

Sometimes, *what* you write isn't nearly as important as the *way* you write it. Consider, for example, an introductory BASIC tutorial which can only be understood by advanced BASIC programmers. Such a tutorial is useless to both groups of people. Now, your Atari can help.



Since the early 1930s, writers have been constructing *readability formulas* to gauge the clarity of their writing. Robert Gunning's Fog Index, introduced in 1968, is one of the best-known. A newer variation of the Fog Index is G.H. McLaughlin's Smog Index, developed in 1980.

The Fog and Smog Indexes are mathematical formulas that estimate the number of years of schooling a person needs in order to read your writing easily. Most local newspapers, for example, are written at 8th-grade level, while the Wall Street Journal "fogs" in at about 12th grade.

In 1949, Dr. Rudolf Flesch introduced one of the first readability formulas. Flesch also developed formulas to measure the "human interest" of a text file. The Flesch Index yields a "reading ease" score between 0 (practically unreadable) and 100 (easy).

Check the readability of your letters, reports and term papers. The San Francisco Fogger analyzes your text files and measures the clarity of your writing. We've provided both ST and 8-bit versions of the program. The 8-bit version of the program works on Atari computers with at least 32K memory, disk or cassette.

THE PROGRAM

The San Francisco Fogger, named for **Antic's** home town, analyzes any text file and determines its Fog Index—as well as its Smog Index and Flesch Score. Fogger also counts the number of sentences and words in your file.

8-Bit Users: Type in Listing 1,FOGGER.BAS, check it with TYPO II and SAVE a copy before you RUN it.

ST Users: Type in Listing 2, FOGGER.C, and compile it with Alcyon C or Megamax C. Antic Disk owners can

continued on next page

What "THEY" Tried and failed with . . .

WE CAN FIX!

CHEERUP UPGRADE

introductory price **$49.95**

order number DCU1

Many Atari users agree . . . the HAPPY ENHANCEMENT is superior to the DUPLICATOR. This Hardware upgrade will improve your 1050 DUPLICATOR. You will enjoy all the features that HAPPY ENHANCEMENT owners have. Back up more disks, including those with 34 sector formats; all HAPPY products do this! With HAPPY, there is no need to wait for new features and more development time. Get a fully developed and working system now! Once the CHEERUP UPGRADE is installed, you can no longer use the DUPLICATOR's "User friendly disk software." You probably won't miss it! Instead, you will use the WARP SPEED SOFTWARE package for disk backup and high speed writing and reading that really works. The CHEERUP UPGRADE includes our CHEERUP hardware module (minimal soldering required), our version 7 WARP SPEED SOFTWARE, complete with manual, all features as listed, and installation instructions. Your upgraded DUPLICATOR will be fully compatible with all HAPPY software features and DOS programs. The 1050 CONTROLLER option is NOT easily used with the upgraded DUPLICATOR. Your DUPLICATOR must be functional before our module can be installed.

NOTE: The 1050 DUPLICATOR is made by DUPLICATING TECHNOLOGIES Inc., they are not affiliated with HAPPY COMPUTERS

ATARI DRIVE OWNERS: CHOOSE THE SYSTEM THAT REALLY PERFORMS

HAPPY DRIVE ENHANCEMENT

still just **$149.95**

for 1050 order number HC1; for 810 order number HC8

The fully working and proven disk drive improvement package. You get: disk backup, high speed write with verify, high speed reading, plus many fantastic features that others only dream about. The 810 version operates in single density with an eighteen sector buffer. The 1050 version operates in all three Atari densities for maximum storage, and buffers up to thirty six sectors! No soldering needed, plug-in installation procedure with complete instructions included Our WARP SPEED SOFTWARE is included at no extra charge! Over 10,000 units sold! High quality, completely assembled circuit board with gold on connector pins

WARP SPEED SOFTWARE VERSION 7 (not sold separately)

Included with CHEERUP UPGRADE, HAPPY 810 & 1050 ENHANCEMENT, B & C 810 HAPPY DRIVE package, and 810 VERSION 7 UPGRADE, now at no extra charge! While others try, they cannot match the features of the proven performer that lets you get the most out of your ENHANCED disk drive. Disk based software package includes the following programs: The Menu options program, which displays system status, controls HAPPY drive modes, and selects our exclusive TRACER function. The HAPPY BACKUP and COMPACTOR programs, which back up more Atari software than any other Atari disk drive enhancement, and operate with one or two HAPPY drives. The MULTI DRIVE backup, which uses our exclusive method for simultaneous reading and writing with up to four HAPPY drives, making three complete disk copies WITH VERIFY, in under two minutes. The DIAGNOSTIC, which allows the user to verify proper HAPPY drive performance. The SECTOR COPIER, which provides the fastest single drive disk copying and can be used with RAMDISK, plus a WARP SPEED DOS and other fantastic features. Unlike others, our WARP SPEED SOFTWARE programs are written in machine language, for maximum speed and efficiency

COMPLETE 810 HAPPY DRIVE PACKAGE

just **$219.95***

order number HM1

The most fantastic offer ever made! A complete disk drive with a version 7 HAPPY ENHANCEMENT installed. This custom case Atari 810 disk drive is made by B & C Computervisions. Fully compatible with the Atari 810; the work-horse of disk drives for Atari 8 bit computers. Comes completely assembled, with power pack, I/O cable, and WARP SPEED SOFTWARE with instructions, ready to use. Not available outside the United States. *Shipping and handling extra on this item.

HAPPY 1050 CONTROLLER

just **$64.95**

order number HC2

For use only with HAPPY ENHANCED 1050 disk drives. Provides convenient control of high speed reading and writing modes. Allows software and front panel switch control of write protect. Prevents writing over valuable data and allows writing to disk flip side. No soldering installation required. Includes indicator LED. Complete instructions on installation and use included. SAVE!!!: Get the CONTROLLER for $35.00 when ordered with the HAPPY 1050 ENHANCEMENT.

SELECT A HIGH SPEED DOUBLE DENSITY DOS

Both of these disk operating systems support the fastest speed with both HAPPY 810** and 1050. With the HAPPY 1050, you get true double density for maximum storage WARP SPEED DOS XL is HAPPY's own version of OSS DOS XL. It offers the best memory utilization for the more technically oriented user. WARP SPEED DOS XL ordered alone is $29.95, order number HC4. TOP DOS version 1.5 is menu driven, and is better suited for those that have only one disk drive, or are less technically oriented. Since only TOP DOS supports the medium ("enhanced") density, it is better suited for those with more than one 1050, but only one HAPPY 1050. Only the HAPPY 1050 will operate in true double density. TOP DOS version 1.5 ordered alone is $39 95, order number HC6. SAVE!!!: Take half off the price of either or both DOS programs when you order these with any other item (not DOS) in this ad. **810 HAPPY must be version 7 compatible to use these DOS programs at high speed; see below.

810 VERSION 7 UPGRADE

This hardware module updates older 810 HAPPIES to have our newest features This upgrade permits these units to be compatible with the version 7 software and high speed DOS programs. This is the only hardware upgrade we have ever required, and with all the new features added, it is well worth the step upward. (Call or write our office to order.)

INFORMATION AND SERVICES

All our products are fully compatible with all Atari 8 bit computers. We offer installation of any product we sell. We offer a repair service for disk drives equipped with our products. Call our office number for details.

---

24 HOUR INFORMATION MACHINE At HAPPY COMPUTERS, you can talk directly to the product designer! Our office hours are 9 a.m. to 5 p.m. Monday thru Friday, Pacific time. You can also call our 24 hour information machine (408) 778-6092 for after hours help, other specials, and discount prices.

ORDER TOLL FREE IN THE USA If you know exactly what you want to order, and do not have any questions, you can save the price of a phone call by using our toll free order service for MASTERCARD / VISA or COD orders. The toll free number does *not* connect you with our office. They CANNOT answer any questions accurately. They can only take your ordering information. Have your order numbers and credit card number (if using credit card) ready, and call (800) 538-8157 outside California, or (800) 672-3470 inside California; ask for extension 817 to place order. You must provide the address of the credit card holder. The toll free number operates 6 a.m. to 12 midnight Monday thru Friday, and 8 a.m. to 8 p.m. on weekends, Pacific time. It takes several days from the time you place your order on the toll free line until your order reaches our office and is processed.

FOR FASTEST RUSH DELIVERY SERVICE Call our office directly. We can help with all the answers to your questions, and will process your order immediately! Our office phone is (408) 779-3830

- **ALL PRICES** except disk drive include shipping in the U.S.A.
- **NO EXTRA CHARGE** for credit card or COD
- **FOREIGN ORDERS** add $10.00 for shipping
- **CALIFORNIA RESIDENTS** add 7% sales tax
- **QUANTITY & OTHER DISCOUNTS** available

HAPPY COMPUTERS

P. O. Box 1268, Morgan Hill, CA 95037

office: (408) 779-3830, 9 a.m. to 5 p.m., Monday thru Friday

transfer the FOGGER.PRG file over to their ST, following the instructions in the ST Help file on Side B of the monthly disk.

The San Francisco Fogger is easy to use. Just enter the name of your text file, and the Fogger does the rest. The Fogger is designed to handle standard ASCII text files! You should avoid using it with files containing printer control codes, or with compressed files. **Antic** has successfully used the Fogger on 8-bit text files created with PaperClip and Atariwriter Plus. On the ST, 1st Word works if files are *not* saved in "Word Processing" mode, and ST Writer works *only* with files that you print to disk.

HOW IT WORKS

Readability formulas usually rely on the average number of words in your sentences, the average number of syllables per word, and the average number of "difficult" words per sentence. Words with three or more syllables are considered difficult by most readability formulas.

The Fogger uses common algorithms to recognize words and sentences in a text file. A sentence is defined as a sequence of words ending in a period (or any other applicable punctuation mark). Words are sequences of letters or numbers not interrupted by a space. The Fogger also corrects for special cases such as "Mr." and "Jr."

The syllable-counting routines, however, are not so simple.

SYLLABLE COUNTING

Initially, the program counts each occurrence of a vowel followed by a non-vowel. The word "Sanctionable" has four such occurrences (S *an* cti *on ab* l *e*).

Next, the Fogger accounts for special cases, such as words with a "silent e."

When the Fogger finds a word with a silent e, it checks to see whether the total syllable count should be reduced. Words like "time," "tile" and "title" all have silent e's. When the Fogger finds such a word, it checks to see if the next-to-last letter is an L. Words which pass this second test, such as "tile" and "title", must go through a third test before the syllable count is correct.

In the third test, the Fogger checks to see if the letter before the L is either a vowel or an R, S, or L (as in quadrille). If the word passes the first two tests, but fails this one, we leave the syllable count alone. Otherwise, we subtract one to account for the silent e.

The Fogger also conducts a similar battery of tests on words which have patterns like es, ed, io, yi and ia. Because of limited publishing space, we could not include less-common patterns in the program.

Occasionally the Fogger will find a word which doesn't fit into any of these rules, and the syllable count will be somewhat inaccurate. Since all three readability formulas rely on *average* values, small inaccuracies in the overall syllable count will not affect the final Fog, Smog and Flesch values.

If you'd like to see the ST's syllable routines at work, hold down the [ALTERNATE] key while selecting (or double-clicking) the file to be processed. The Fogger will display each word in the file, along with the number of syllables in the word.

NUMBER-CRUNCHING

Once all of the syllables, words and sentences are counted, the Fogger calculates the Fog, Smog and Flesch Indexes. The formulas appear in the ST listing in the **number_crunch()** function.

By the way, this article has a Fog Index of 8.74, a Smog Index of 11.43 and a Flesch Score of 59.98.

Listing on page 98 Listing on page 100

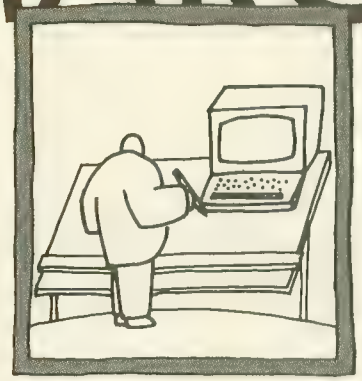
RECOMMENDED BOOKS

The Art Of Readable Writing by Dr. Rudolf Flesch. Harper & Brothers Publishers, 1949.

Would You Put That In Writing? by Dianna Booher. Facts On File, 1983.

Writing Effective Business Letters, Memos, Proposals, & Reports by Samuel Cypert. Contemporary Books, 1983.

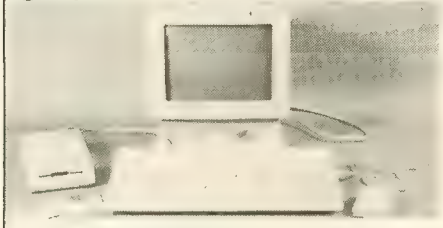
COMING IN
MARCH



INSIDE TODAY'S ATARI
What's coming off the drawing board!

Wage/Hour Paymaster
Multi Autorun Files
Rainbow Screenmaker

520 ST COMPLETE SYSTEM PACKAGE



Monochrome System: **$569.00**

Color System: **$779.00**

Package includes: 520ST computer with modulator, disk drive, mouse, logo, Basic and monochrome or color monitor.

1040 ST COMPLETE SYSTEM PACKAGE

Monochrome System: **$819.00** Color System: **$969.00**

Package includes: 1040ST, with 1 mb RAM with 3½" drive built-in, 192K ROM with TOS, Basic, Logo, ST language, power supply and color or monochrome monitor.

PERIPHERALS AND ACCESSORIES FOR ATARI ST COMPUTERS

ATARI	ATARI 314	SUPRA	ANCHOR 520	ATARI XM804
20 Meg Hard Drive	1 Meg Double Sided Disk Drive	30 Meg Disk Drive	300/1200 Direct Connect Modem	Dot Matrix Graphics Printer
AA51620 **$689.00**	AA314 **$219.00**	SJHD30ST **$799.00**	AN520 **$149.00**	AAXM804 **$199.00**

DRIVES

ATARI 1050.....$129.00
(Dos 3.0 Included)

INDUS GT.....$199.00

10 VERBATIM DISKETTES
$6.99 with drive purchase

XL/XE PERIPHERALS

COMPUTERS

ATARI 800 XL.....$79.99
ATARI 65 XE.....$89.99
ATARI 130 XE.....$139.00

PRINTERS

Atari 1020.....$29.99
Atari 1025.....$139.00
Atari 1027.....$109.00
Atari XM801.....$189.00

MODEMS

Atari 835.....$24.99
Atari XM301.....$39.99
Anchor Volksmodem.....$59.99
Volksmodem 1200.....$139.00
Supra 1200 AT.....$159.00

ATARI ROMS

Factory Sealed

- Star Raider
- Asteroids
- Pac Man
- E.T. Phone Home
- Missile Command
- Defender
- Qix
- Music Composer

YOUR CHOICE **$7.99 ea.**

INTERFACES

ICD PR Connection.....$64.99
Supra Microprint.....$39.99
Supra 1150.....$44.99
Supra 1151 (1200XL).....$44.99
Atari 850.....$109.00

MONITORS

Multitech
13'' Composite.....$159.00
NAP
12'' Green Composite.....$75.99
Taxan TV Tuner.....$59.99

LOOSE UNBOXED ATARI ROM CARTS

YOUR CHOICE $3.49ea./5 for $14.99

- Video Easel
- Space Invaders
- Star Raiders
- Missile Command
- Asteroids
- Galaxian
- Defender
- E.T.
- Eastern Front
- Robotron
- Qix
- Tic, Tac, Toe
- Music Composer
- Super Breakout
- Basketball
- Donkey Kong
- Pac Man
- Centipede

AXLON MEMORY BOARDS

32K RAM Boards.....$24.99
48K RAM Boards.....$49.99
128K RAM Disk.....$119.99

When you want to talk computers. When you want to talk price.

COMPUTER MAIL ORDER

In the U.S.A. and Canada

Call toll-free: 1 800 233-8950

Corporate, Educational and Institutional Organizations call 1 800 221-4283
Outside the U.S.A. call 717 327-9575 Telex 5106017898
CMO. 477 East Third Street, Dept. B602, Williamsport, PA 17701
All major credit cards accepted.

POLICY: Add 3% (minimum $7.00) shipping and handling. Larger shipments may require additional charges. Personal and company checks require 3 weeks to clear. For faster delivery use your credit card or send cashier's check or bank money order. Pennsylvania residents add 6% sales tax. All prices are U.S.A. prices, Canadian orders are subject to tariffs and currency fluctuations. All prices are subject to change and all items are subject to availability. Defective software will be replaced with the same item only. Hardware will be repaired or replaced at our discretion within the terms and limits of the manufacturer's warranty. We cannot guarantee compatibility. All sales are final and returned shipments are subject to a restocking fee.

CIRCLE 023 ON READER SERVICE CARD

Word Processors: 7 For The 8-Bit

Finally, a real choice

BY GREGG PEARLMAN, ANTIC JUNIOR EDITOR

Atari 8-bit computers are fine word processing tools. For $500 or less—the price of a computer, printer, disk drive, software and some paper—you can have clean, correction-free documents that make ordinary typewritten material look as if the cat did it. In terms of versatility, speed, ease of use and readability, word processing is as far above typewriting as typewriting is above penmanship.

An individual word processor is an acquired taste. Features that please some might annoy others. Even the five **Antic** editors are split on their favorites. For personal use, two prefer PaperClip, two use AtariWriter or AtariWriter Plus, and the fifth uses Letter Perfect.

What follows is a detailed comparison—including a features chart—of seven word processors currently available for Atari 8-bit computers. These word processors are AtariWriter Plus, First XLEnt Word Processor, PaperClip, Letter Perfect, Superscript, Word Magic and HomeText.

80 COLUMNS

The biggest lack in 8-bit Atari word processing to date has been the unavailability of an 80-column screen display that shows your page exactly as it will print out. However, Atari now says that its long-awaited XEP80 80-column adapter box will be shipping in January, 1987.

The XEP80's razor-sharp text display was demonstrated at last year's trade shows and Atari Fairs. The $79.95 adapter plugs into either joystick port and includes its own parallel printer interface. It works with either monochrome or color monitors.

Prompt release of new versions supporting 80 columns on the XEP80 are expected from AtariWriter Plus, PaperClip and First XLEnt Word Processor.

ACE80 ($49.95. Reviewed in **Antic**, July 1986) and Write80 ($59.95. Reviewed in October 1986) each offer 80-column displays without the XEP80 hardware. But neither of these products can be considered full-featured word processors like the other software in this report.

ATARIWRITER PLUS

AtariWriter Plus does many things well. Its Proofreader and Mail Merge functions make it one of the most complete word processing packages available for Atari 8-bit computers. AtariWriter Plus is powerful and versatile, it does not drop characters or lock up as you type, and it has a 36,000-word spell-checking dictionary.

The main limitation we found is a maximum file size of only 12.3K on the 800XL, slightly less than half of the file sizes we obtained from four other word processors. (See features chart.)

However, on the 130XE (and compatible memory upgrades) there are 15,872 bytes free—in each of three "banks." Files longer than 15.5K "spill over" into the next available bank. [START] [B] switches from one bank to another, and [OPTION] [F] evenly distributes the file among all three banks.

AtariWriter Plus can be configured to almost any printer. You need to load the printer driver every time time you boot up. The print preview feature gives you horizontal scrolling in more than 200 columns, and under-

WORD PROCESSOR	Atari-Writer+	First XLEnt	Paper-Clip	Letter Perfect	Super-script	Word Magic	Home-Text
Printer Driver Utility	Y	Y	Y	Y	Y	Y	Y
Copy-Protected	Y	N	Y	Y	Y	N	N
Max-XL File Size	12.3K	28.3K	25.0K	28.0K	15.2K	23.7K	6.5K
Auto-Backup	N	N	Y	N	N	N	N
Menu-Driven	Y	Y	N	Y	Y	Y	Y
Batch Printing	Y	Y	Y	Y	N	N	N
Undo Function	N	N	Y	N	N	N	N
Windows Per Screen	1	1	2	1	1	1	1
Horizontal Scrolling	Y	N	Y	N	N	N	N
Proportional Spacing	N	Y	Y	Y	N	N	N
Header/Footer Function	Y	Y	Y	Y	Y	Y	Y
Lines Per Header/Footer	2	1	3	1	2	1	2
Double Column Printing	Y	Y	Y	N	N	N	N
Embedded Printer Codes	Y	N	Y	Y	Y	Y	N
Mail Merge	Y	Y	Y	Y	Y	Y	Y
Reads Other WP Files	Y	Y	Y	N	Y	Y	Y
Spell-Checker	Y	N	*	Y	Y	**	N
Extra XE File Size	*** 46.5K		Uses RAM-disk	64.1K			

*Only with XE version.

**Spell Magic—which also works with files from other word processors

***15.5K in each of three memory banks.

lined characters appear in inverse video. However, boldface, italics and other special fonts are not indicated onscreen. The AtariWriter Plus Mail Merge lets you create an electronic mailing list with up to 255 records per file.

AtariWriter Plus's powerful search-and-replace lets you use question marks as "wild card" characters. And global substitution is almost instantaneous—you don't have to watch the cursor scroll through the entire file.

The Proofreader program takes a little while to load, but it quickly scans your file for anything unusual, at which time an obnoxious beep alerts you. [CONTROL] [B] from the main menu deactivates the alarm. You can correct the word, search the dictionary or keep that spelling. You can also create personal dictionaries of up to 8,400 bytes. (For example, 8,400 bytes would hold 1,200 words consisting of six letters and a space.)

While the **Antic** editorial staff has had no problems with AtariWriter Plus, this isn't entirely true of our

readers. We have received a trickle of letters listing minor complaints. For example, apparently headers and footers are sometimes printed somewhere other than where you want them.

$49.95. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000. (Reviewed in **Antic**, April 1986, page 81.)

FIRST XLENT

First XLEnt Word Processor is the newest 8-bit product in this category and it is packed with unique and impressive features. First XLEnt lets you add pictures to the text, use the joystick for cursor movement, edit two documents at once, load in any Atari 8×8 font (such as international character sets). Help screens are easily available and search-and-replace is almost immediate.

You can load files from any DOS (including specialized operating systems such as SpartaDOS). And there's no problem loading First XLEnt files to other word processors that use an Atari-compatible DOS. First XLEnt is

continued on page 28

TEVEX = Software, Service, & Savings

SSI

	LIST PRICE	OUR PRICE
Battalion Commander	$40	$27
Battle/Antietam	$50	$33
Battle for Normandy	$40	$27
Broadsides	$40	$27
Carrier Force	$60	$40
Colonial Conquest	$40	$27
Combat Leader	$20	$15
Computer Ambush	$60	$40
Computer Baseball	$20	$15
Computer Quarterback	$40	$27
Cosmic Balance	$40	$27
Field of Fire	$40	$27
50 Mission Crush	$40	$27
Gemstone Warrior	$20	$15
Gettysburg	$60	$40
Imperium Galactum	$40	$27
Kampfgruppe	$60	$40
Kamp. Scen. Disk	$20	$15
Knights of the Desert	$40	$27
Mech Brigade	$60	$40
Nam	$40	$27
Operation Market Garden	$50	$33
Panzer Grenadier	$40	$27
Questron	$50	$33
Rails West	$40	$27
Reforger 88	$60	$40
Six Gun Shootout	$40	$27
U.S.A.A.F.	$60	$40
War in Russia	$80	$53
Wargame Constr *NEW*	$30	$20
Warship *NEW*	$60	$40
Wizard's Crown	$40	$27

BRØDERBUND

	LIST PRICE	OUR PRICE
Brimstone (2 drives)	$40	$27
Champ. Lode Runner	$35	$23
Essex (2 drives)	$40	$27
Lode Runner	$35	$23
Lode Runner's Rescue	$30	$20
Mindwheel (2 drives)	$40	$27
Print Shop	$45	$30
Print Shop Companion	$35	$23
PS Grap. Lib. 1,2,3	$25	$17

EPYX

	LIST PRICE	OUR PRICE
Ballblazer	$15	$12
Eidolon	$15	$12
Koronis Rift	$15	$12
Rescue on Fractalus	$15	$12
Summer Games	$40	$27
Temple Apshai Trilogy	$40	$27
World Karate Champ.	$30	$20

MICROPROSE

	LIST PRICE	OUR PRICE
Conflict in Vietnam	$40	$27
Crusade in Europe	$40	$27
Decision in the Desert	$40	$27
F-15	$35	$23
Kennedy Approach	$25	$17
Silent Service	$35	$23
Solo Flight	$25	$17
Top Gunner	$25	$17

ATARI ST

	LIST PRICE	OUT PRICE
Auto Duel NEW	$50	$33
A Mind/Voyaging	$45	$30
Amazon	$50	$33
Ballyhoo	$40	$27
Black Cauldron	$40	$27
Borrowed Time	$50	$33
Brataccus	$50	$33
Chessmaster 2000 NEW	$40	$27
Fahrenheit 451	$50	$33
Flight Simulator II NEW	$50	$33
Hacker	$45	$30
Hacker II	$50	$33
Hitchhiker's Guide	$40	$27
Kings Quest II	$50	$33
Leader Board	$45	$30
Leather Goddesses NEW	$40	$27
Little Computer People	$50	$33
Mean 18	$45	$30
Mindshadow	$50	$33
Music Studio	$60	$40
Nine Princes of Amber	$50	$33
Pawn	$45	$30
Phantasie	$40	$27
Rogue	$40	$27
Silent Service	$40	$27
Star Fleet I NEW	$55	$37
Star Glider NEW	$45	$30
Sundog	$40	$27
Sword of Kadash	$20	$15
Temple Trilogy	$40	$27
Trinity	$40	$27
Ultima II	$60	$40
Ultima III	$60	$40
Universe II	$70	$46
Winter Games	$40	$27
World Games	$40	$27

ACTIVISION

	LIST PRICE	OUR PRICE
Ghostbusters	$30	$20
Hacker	$25	$17
Mindshadow (64k)	$25	$17
Music Studio	$35	$23
Space Shuttle	$25	$17

INFOCOM

	LIST PRICE	OUR PRICE
Ballyhoo	$40	$27
Deadline	$45	$30
Enchanter	$35	$23
Fooblitzky	$40	$27
Hitchhikers Guide	$35	$23
Leather Goddesses	$35	$23
Moonmist *NEW*	$35	$23
Planetfall	$35	$23
Sorcerer	$40	$27
Spellbreaker	$45	$30
Suspect	$40	$27
Wishbringer	$35	$23
Zork I	$35	$23
Zork II or III	$40	$27
Invisiclues	$8	$6

ELEC. ARTS

	LIST PRICE	OUR PRICE
Age of Adventure *NEW*	$15	$12
Archon	$15	$12
Archon II: Adept	$33	$22
Chessmaster 2000	$40	$27
Lords of Conquest *NEW*	$33	$22
Mail Order Monsters *NEW*	$15	$12
Movie Maker	$33	$22
M.U.L.E.	$15	$12
Ogre *NEW*	$40	$27
One on One	$15	$12
Racing Destr. Set	$15	$12
Touchdown Football	$15	$12
Ultima III-Origin Sys.	$50	$33
Ultima IV-Origin Sys.	$60	$40

ETC.

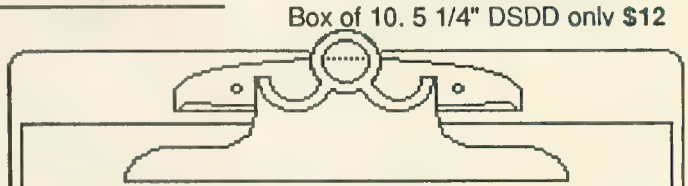
	LIST PRICE	OUR PRICE
Alternate Reality	$40	$27
Chickamauga	$35	$23
Clash of Wills	$40	$30
Fight Night	$30	$20
Flight Simulator II	$50	$33
Great War - 1914	$40	$30
Halley Project	$30	$20
Hardball	$30	$20
Leader Board	$40	$27
Mercenary	$30	$20
Metz/Cobra	$40	$30
Micro League Baseball	$40	$27
Napoleon at Waterloo	$35	$25
Never Ending Story	$30	$20
Sargon III	$50	$33
Spy vs Spy I &II	$15	$12
Star Fleet I	$50	$33
Universe	$90	$70

Tevex Blank Disks
Box of 10. 5 1/4" DSDD only **$12**

TEVEX
INCORPORATED

1710 Wilwat Drive, Suite E
Norcross, GA. 30093
404-441-3045

BEST SELECTION - We have carefully selected the best titles from the most challenging software available.
CALL TOLL-FREE - Call us to place an order or just to ask a question. Every call is always welcome on our 800 line.
SAME DAY SHIPPING - We ship every order the same day it's placed. Just call before 3:30 pm and we'll ship your order UPS.
DISCOUNT PRICES - Save up to 1/3 off the retail price when you buy from Tevex. Why pay more for the same software?
FRIENDLY, KNOWLEDGEABLE STAFF - We are always available to answer your questions and keep you up to date on new & upcoming games.



COMING SOON

Auto Duel - Origin
Battlegroup - SSI
Destroyer Escort - Microprose
Dungeon - Datasoft
Guderian - Avalon Hill
Gunship - Microprose
Phantasie - SSI
Shiloh - SSI
221-B Baker Street - Datasoft

FOR THE ST
Breach - Omnitrend
Skyfox - Elec. Arts

CALL TOLL-FREE 1-800-554-1162

SAME DAY SHIPPING *
WRITE FOR FREE CATALOG

VISA MASTERCARD

Open 9-8 Mon. - Fri. 10-4 Sat.

Georgia residents call 404-441-3045. ORDERING AND TERMS: C.O.D. orders welcome. When ordering by phone use VISA or MASTERCARD. When ordering by mail send personal check or money order. Include phone number. SHIPPING: Add $2.50 for shipping and handling charge. Georgia residents add 4% sales tax. Shipping for Canadian orders is $4.00 or 5% of order. APO & FPO orders add $3.00 or 5% of order. Shipping for all other foriegn orders is $10.00 or 15% of order. * On all orders before 3:30 pm. All prices subject to change.

CIRCLE 062 ON READER SERVICE CARD

Software Discounters of America

S.D. of A.

For Orders Only—1-800-225-7638
PA Orders—1-800-223-7784
Customer Service 412-361-5291

- Free shipping on orders over $100 in continental USA
- No surcharge for VISA/MasterCard
- Your card is not charged until we ship

ABACUS BOOKS
ST Gem Prog. Ref.
ST Graphics & Sound
ST Internals CALL
ST Logo FOR
ST Machine LOW
Language PRICES
ST Midi Programming
ST Peeks & Pokes
ST 3-D Graphics
ST Tricks & Tips
ABACUS SOFTWARE
Assem/Pro ST $39
Data Trieve ST $33
Forth/MT ST $33
Paint Pro ST $33
Text Pro ST $33
ACADEMY
Typing Tutor ST $23
ACCESS
Leader Board Golf (D) .. $25
Leader Board Golf ST .. $25
L.B. Tourn. Disk#1 ST .. $14
L.B. Tourn. Disk #1 (D) .. $14
Tenth Frame ST $25
Triple Pack: BH1, BH2, Raid Over Moscow (D) $14
ACCOLADE
Fight Night (D) $19
Hardball (D) $19
Mean 18 Golf ST $25
ACTIVISION
Great American Cross Country Road Race (D) $16
Hacker (D) $16
Hacker 2 ST $33
Music Studio ST $39
Music Studio (D) $23
Shanghai ST $29
Space Shuttle (D) $16
Tass Times in Tonetown ST $33
AMERICAN EDUCATIONAL COMPUTER
Biology (D) $14
French (D) $14
Grammar (D) $14
Science: Grades 3/4 (D) .. $14
Science: Grades 5/6 (D) .. $14
Science: Grades 7/8 (D) .. $14
Spanish (D) $14
ARTWORX
Bridge 4.0 (D) $16
Bridge ST $19
Compubridge ST $19
Hole in One Golf ST $19
Mail List ST $14
Peggammon ST $12
Strip Poker (D) $21
Strip Poker ST $25
Thai Boxing ST $14
Female Data Disk 1 .... $14
Male Data Disk 2 ..... $14
Female Data Disk 3 .... $14
AVALON HILL
Gulf Strike (D) $19
Jupiter Mission 1999 (D) $33
Maxwell Manor (D) $16
Mission on Thunderhead (D) $16
Quest of the Space Beagle (D) $23
Title Bout (D) $19
AVANTAGE
Spy vs. Spy 1 & 2 (D) $12
BATTERIES INCLUDED
B-Graph (D) $25
Degas ST $25
Degas Elite ST $49

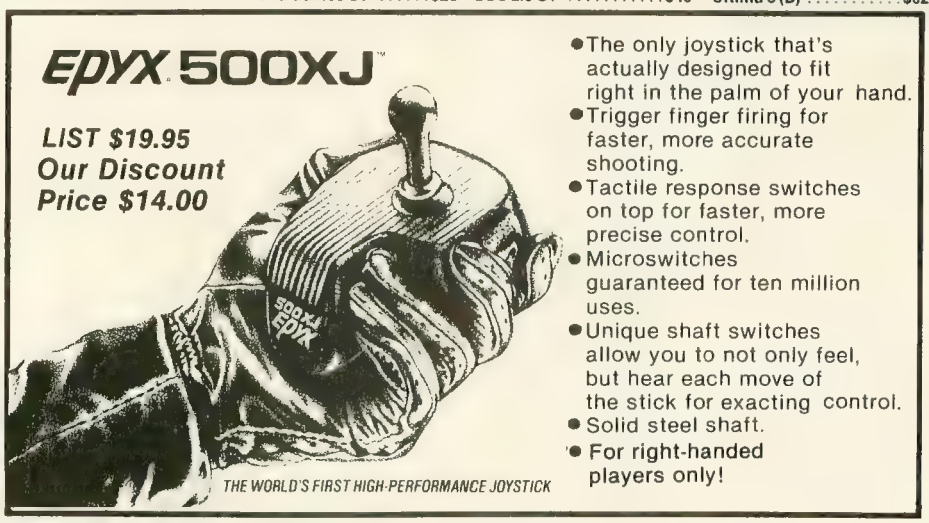
I*S Talk ST $33
Isgur Portfolio System ST $129
Paperclip (D) $36
Paperclip w/Spell 130XE $36
Thunder ST $25
Time Link ST $33
BRODERBUND
Print Shop (D) $26
Print Shop Graphics Library #1, #2, #3 (D) .. $16Ea.
P.S. Companion 64K (D) .. $23
CENTRAL POINT
Copy 2 ST $25
CBS
Success w/Math Series:
Addition/Subtraction (D) $16
Decimals: Add/Subt (D) .. $16
Decimals: Mult/Div (D) .. $16
Fractions: Add/Subt (D) .. $16
Fractions: Mult/Div (D) .. $16
Multiplication/Division (D) $16
Quadratic Equations (D) $16

One-on-One (D) $9.88
Pinball Const. Set (D) .. $9.88
Racing Dest. Set (D) .. $9.88
Seven Cities of Gold (D) .. $9.88
Super Boulder Dash (D) .. $9.88
Touchdown Football (D) $9.88
ELECTRONIC ARTS
Archon 2: Adept (D) $23
Chessmaster 2000 (D) .. $26
Chessmaster 2000 ST .. $29
Lords of Conquest (D) .. $23
Movie Maker (D) $23
Skyfox ST $29
Star Fleet 1 ST $33
EPYX
Champ. Wrestling ST .. $23
Rogue ST $23
Super Cycle ST $23
Temple Apshai Trilogy (D) $23
Temple Apshai Trilogy ST $23
Winter Games ST $23
World Champ. Karate (D) $19
World Games ST $23

Hitchhiker's Guide to the Galaxy (D) $23
Leather Goddesses (D) .. $23
Moonmist (D) $23
Planetfall (D) $23
Sorcerer (D) $25
Spellbreaker (D) $29
Trinity ST $25
Wishbringer (D) $23
Zork 1 (D) $19
Zork 2 or 3 (D) $25
* All titles in stock for 520 ST—*Call for prices*
MASTERTRONIC
Action Biker (D) $7
Elektraglide (D $7
Magnum Joystick $12
Ninja (D) $7
Speed King (D) $7
The Last V8 (D) $7
Vegas Poker & Jackpot (D) $7
MICHTRON
BBS 2.0 ST $49

Silent Service ST $25
Top Gunner (D) $16
MINDSCAPE
Bop & Wrestle (D) $19
Brattacus ST $33
Crossword Magic (D) ... $33
MINDSCAPE CINEMAWARE
Defender of the Crown ST ..... Call
S.D.I. ST ..... Call
Sinbad: Throne of the Falcon ST ..... Call
The King of Chicago ST Call
MONOGRAM
Dollars & Sense ST $65
OMNITREND
Breach ST $25
Universe 2 ST $44
ORIGIN
Autoduel ST $33
Ogre ST $26
Ultima 3 ST $39
Ultima 3 (D) $32

Kings Quest 2 ST $33
Space Quest ST $33
Winnie the Pooh ST $16
SPINNAKER
Adventure Creator (R) .. $6.88
Alphabet Zoo (R) $6.88
Delta Drawing (R) $6.88
Facemaker (R) $6.88
Fraction Fever (R) $6.88
Kids on Keys (R) $6.88
Story Machine (R) $6.88
SSI
Battalion Commander (D) $25
Battle of Antietam (D) .. $33
Colonial Conquest (D) .. $25
Gettysburg (D) $37
Kampfgruppe (D) $37
Mech Brigade (D) $37
NAM (D) $25
Phantasie (D) $25
Phatasie ST $25
War Game Const. Set (D) $19
Wizard's Crown (D) $25
SUBLOGIC
Flight Simulator 2 (D) ... $32
Flight Simulator ST $33
F.S. Scenery Disks .... Call
Jet ST ..... Call
SYNAPSE
Syn-Calc (D) $33
Syn-File (D) $33
Syn-Calc Templates (D) .. $16
TDI
Modula 2 ST $49
Modula 2 (Dev.) ST ..... Call
TIMEWORKS
Data Manager ST $49
Swiftcalc ST $49
Word Writer ST $49
TRONIX
(S.A.M.) Software Automatic Mouth (D) $19
UNICORN
Decimal Dungeon ST ... $25
Fraction Action ST $25
Math Wizard ST $25
Read & Rhyme ST $25
UNISON WORLD
Art Gallery 1 ST $19
Art Gallery 2 ST $19
Print Master ST $25
XLENT
First Xlent W.P. (D) $19
Megafont ST $25
Miniature Golf Plus (D) .. $19
Page Designer (D) $19
P.S. Interface (D) $19
Rubber Stamp (D) $19
Rubber Stamp ST $25
Typesetter (D) $23
Typesetter Elite ST $33
Write 90° ST $19
ACCESSORIES
Anchor VM 520 300/1200 Baud Modem ST $139
Bonus 5¼ SS, DD .. $5.99Bx
Bonus 5¼ DS, DD .. $6.99Bx
Bulk Disks 3½ ..... Call
Compuserve Starter Kit .. $19
Disk Case (Holds 40-3½) .. $9
Disk Drive Cleaner-5¼ .. $9
Disk Case (Holds 75-5¼) .. $9
Epyx 500XJ Joystick $14
MPP300AT/1000E $34
Supra 20 meg ST Drive .. Call
Wico Boss $12
Wico Bat Handle $17
Wico Black Max $9
Xetec Printer Int. ..... Call



- The only joystick that's actually designed to fit right in the palm of your hand.
- Trigger finger firing for faster, more accurate shooting.
- Tactile response switches on top for faster, more precise control.
- Microswitches guaranteed for ten million uses.
- Unique shaft switches allow you to not only feel, but hear each move of the stick for exacting control.
- Solid steel shaft.
- For right-handed players only!

CDA
America Cooks Series:
American ST $9.95
Chinese ST $9.95
French ST $9.95
Italian ST $9.95
Mexican ST $9.95
DATASOFT
Alt. Reality: City (D) $25
Alt. Reality: City ST $25
Alt. Reality: Dungeon (D) $25
Mercenary (D) $19
Theatre Europe (D) $23
Video Title Shop (D) $19
DAVIDSON
Math Blaster (D) $33
Spell It (D) $33
Word Attack (D) $33
ELECTRONIC ARTS
Software Classic Series:
Age of Adventure (D) .. $9.88
Archon (D) $9.88
Cut & Paste W.P. (D) .. $9.88
Mail Order Monsters (D) .. $9.88
M.U.L.E. (D) $9.88
Music Const. Set (D) .. $9.88

FIREBIRD
The Pawn ST $29
Star Glider ST $29
FTL
Dungeonmaster ST $25
R.P.V. ST $25
Sundog ST $25
GAMESTAR
Champ. Baseball '86 ST .. $29
Champ. Basketball ST .. $29
HAYDEN
Sargon 3 (D) $25
HI-TECH EXPRESSSIONS
Card Ware (D) $6.88
Heart Ware (D) $6.88
Party Ware (D) $9.88
ICD
Multi I/O Boards ..... Call
P.R. Connection ..... Call
Rambo XL $29
RT 8 ..... $49
US Doubler w/Sparta DOS $49
INFOCOM
Ballyhoo (D) $23
Enchanter (D) $23

Business Tools ST $33
Calendar ST $19
Corner Man ST $33
Major Motion 520 ST ... $25
M-Disk ST $25
Mighty Mail ST $33
Personal Money Mgr. ST .. $33
Pinball Factory ST $25
Pro Football Wizard ST .. $25
The Animator ST $25
Time Bandit ST $25
MICROLEAGUE
Baseball (D) $25
Box Score Stats (D) $16
General Manager (D) $25
1985 Team Data Disk (D) $14
1986 Team Data Disk $14
WWF Wrestling ST .... Call
MICROPROSE
Conflict in Viet Nam (D) .. $25
Crusade in Europe (D) .. $25
Decision in Desert (D) .. $25
F15 Strike Eagle (D) $23
Gunship ST ..... Call
Kennedy Approach (D) .. $16
Silent Service (D) $23

Ultima 4 (D) $39
OSS
Action (R) $47
Action Tool Kit (D) $19
Basic XE (R) $47
Basic XL (R) $37
Basic XL Tool Kit (D) ... $19
MAC 65 (R) $47
MAC 65 Tool Kit (D) $19
Personal Pascal ST $49
PCA
The Graphic Artist ST .. $129
PENGUIN/POLARWARE
Crimson Crown ST $14
Oo-Topos ST $14
Sword of Kadash ST $14
Transylvania ST $14
REGENT
Regent Base ST $59
Regent Word 2 ST $59
SHELBOURNE
ST Pool $23
SIERRA
Black Cauldron ST $25
Homeword W.P. (D) $19
Kempelen Chess ST ... Call

P.O. BOX 111327—DEPT. AT—BLAWNOX, PA 15238

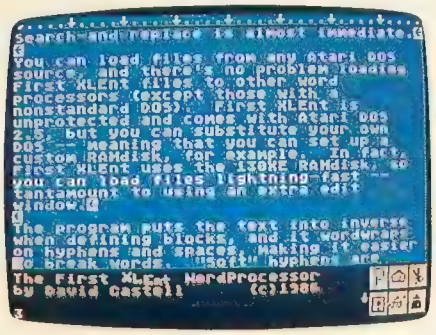
**Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order:* Orders with cashiers check or money order shipped immediately. Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! *Shipping: Continental U.S.A.*—Orders under $100 add $3; *free shipping on orders over $100. AK, HI, FPO, APO—add $5 on all orders. Canada & Puerto Rico—add $10 on all orders.* Sorry, no other International orders accepted! *PA residents add 6% sales tax on the total amount of order including shipping charges!* Prices subject to change without notice. *REASONS FOR CALLING CUSTOMER SERVICE—412-361-5291 (1)* Status of order or back order *(2)* If any merchandise purchased within 60 days from S.D. of A. is defective, please call for a return authorization number. Defective merchandise will be replaced with the same merchandise only. NO CREDITS! After 60 days please refer to the manufacturers warranty included with the merchandise & return directly to the manufacturer. *Customer service will not accept collect calls or calls on S.D. OF A.'s 800# order lines! REGULAR HOURS: Mon.-Fri. 9AM-5:30 PM, Sat. 10AM-4PM Eastern Time.* Have you seen our on line catalog of 1000 software titles for Commodore, Atari, Apple, IBM and Amiga? It's on Compuserve Electronic Mail—just type GO SDA and shopping for software will never be the same again!

CIRCLE 054 ON READER SERVICE CARD

continued from page 25

not copy-protected and comes with Atari DOS 2.5, but you can substitute your own DOS—meaning that you can set up a large RAMdisk, for example. In fact, First XLEnt uses the 130XE RAMdisk, so you can load files lightning-fast—tantamount to using an extra edit window.

The program wordwraps on spaces



and hyphens, making word-breaks cleaner. "Soft" hyphens are ignored unless needed for a line break, and "hard" spaces prevent a line break at that space. However, if you use a double hyphen for dashes (—), they will be split up at the end of a line when printed.

First XLEnt has a visible, editable cut-and-paste buffer. You can insert a disk file anywhere in your text without losing the end of your document. You can save to disk any *part* of the document in memory. Also, when working with two documents in memory, First XLEnt flips between them instead of splitting the screen into small windows. (Those who prefer two windows might like PaperClip better.)

The biggest limitation we found in First XLEnt is that the cut-and-paste buffer holds you to one screen—800 characters. Also, the printing section in the manual could be more informative.

When you go to the icon menu you're not always returned to your original spot in the text, or even to the same typing mode. If you were in Insert mode, you might find that you've overwritten some of your document before you realize you're no longer in that mode. And finally, the [CONTROL] key combinations on the 800 become [OPTION] key on the XL/XE.

But despite any minor quibbles, the First XLEnt Word Processor is a most welcome entry in the 8-bit market. It's powerful, easy to use and highly original.

$29.95. XLEnt Software, P.O. Box 5228, Springfield, VA 22150. (703) 644-8881. (Reviewed in **Antic**, January 1987, page 53.)

PAPERCLIP

As we've said on various occasions, Batteries Included's **PaperClip** is the 8-bit word processor we use at **Antic**. Several features weight the dice heavily in PaperClip's favor. It has "macro" capability for writing out lengthy strings of stored text with just two keystrokes. It has a generally fast and efficient command structure. It lets you work on two windows at once, and can use the paste buffer as a third window. It reads standard Atari DOS files, so you can easily work with files from most other 8-bit word processors.

PaperClip's best and most original editing features include commands to transpose two adjacent characters or words in a line, and to delete one word. When you press [CONTROL] [SHIFT] [CAPS], the cursor scoots along, changing capital letters to lowercase or vice versa.

The search-and-replace feature is good, but it slows down as file size increases. However, you can search and replace as many as six strings during a single global substitute. You can easily merge files, rename or erase them, and format disks. PaperClip can automatically save your text after a number of keystrokes which you select.

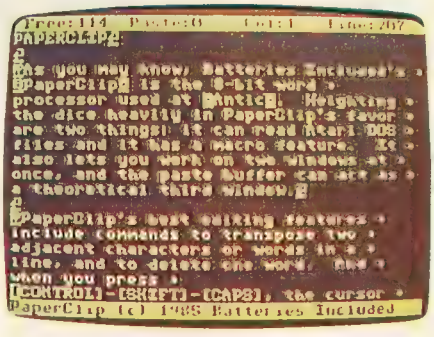
PaperClip's commands are generally easy to remember. [CONTROL] [SHIFT] [R] **R**eads a file from disk, and [CONTROL] [SHIFT] [W] **W**rites it to the disk. [CONTROL] [SHIFT] [M] **M**oves a block, [CONTROL] [B] turns on **B**oldface, etc. But then [CONTROL] [A] sets print tabs and [CONTROL] [T] forces a new page, so the memory associations are not always that clear.

Among the word processors in this report, only Superscript and PaperClip have math functions. PaperClip can add, subtract, multiply and divide, and print totals and subtotals. But you need to use the print preview window to see the results, which for unknown reasons often renders useless the block move command, [CONTROL] [SHIFT] [M].

Other functions include batch file processing and Mail Merge. The utility files also include machine language printer driver maker, a graphics dump and an AtariWriter to PaperClip conversion program. [CONTROL] [SHIFT] [1] gives a word count, but it's not terribly accurate. It counts spaces, not words, and consequently misses by as much as 20 percent. The print preview feature uses PaperClip's wide horizontal scrolling to display the page as it will look on paper.

Despite all these flashy and valuable features, **Antic** editors have learned from nearly two years of heavy PaperClip use that the software sometimes mysteriously locks up or drops characters. Also, the type-ahead buffer is often too slow to keep up with reasonably speedy typing, especially at line-breaks.

The program doesn't tell you when your data disk is full. And in a rare



copy-protection scheme, you can back up the disk but you must plug the enclosed "hardware key" into joystick port 2 to run PaperClip. That key costs $20 to replace, but a keyless 48K-only version is available for $39.95.

Our copy of SpellPack, the spell-checker in PaperClip's 130XE version, didn't show words like "without," "us" and "too." But it had no problem with "mnemonic" or "dubious"—and it also provided a large selection of non-words such as "usabg" and

"thesficking."

However, Batteries Included has assured **Antic** that these bugs are fixed in PaperClip version 2.0 which is presently shipping. Upgrades are free with a dated receipt within 90 days of purchase. After that, the fee is $10 for an updated 130XE version and $15 for an upgrade from XL to XE.
$59.95. Batteries Included, 30 Mural Street, Richmond Hill, Ontario, L4B 1B5, Canada. (416) 881-9941. (Reviewed in **Antic**, May 1985, page 24.)

LETTER PERFECT

LJK's **Letter Perfect** has been around for Atari 8-bit computers since 1981. It uses its own operating system and cannot use files compatible with Atari DOS unless they are converted with LJK's Utility Disk. This translator can switch files back and forth between Letter Perfect and standard Atari DOS formats.

You also need another translator disk (such as FIX-XL from The Catalog) to run Letter Perfect on an Atari XL or XE.

We used Letter Perfect as our **Antic** word processor until PaperClip came along. One of the things we liked about it was that it could be used with the OmniView 80-column card. ($69. CDY Consulting, 421 Hanbee, Richardson, TX 75080. (214) 235-2146.)

Getting to most of Letter Perfect's file commands requires you to press the [ESC] key, which takes you from the editing screen to a main menu. It takes a while to learn Letter Perfect commands. But once you do, you should have little trouble. Almost refreshingly, you can type as fast as you want and each character will appear on the screen almost instantly.

Letter Perfect has an outstanding spell-checker. This, however, necessitates using yet another disk. But when you see how quickly the program counts words in a document and searches the dictionary disk, you won't mind.

Letter Perfect's non-standard operating system is its biggest drawback. If you normally work with Atari DOS files, it's inconvenient to use a word processor that doesn't. And what happens if you find a word processor you like better? You must convert all your active files with the LJK Utility Disk.
$99.95. LJK Enterprises, 7852 Big Bend Blvd., St. Louis, MO 63119. (314) 962-1855. (Reviewed in **Antic**, March 1985, page 38.)

SUPERSCRIPT

With the British-designed **Superscript**, beginners can select commands from a menu structure, while experienced users can work faster with single-key [CONTROL] commands.

Superscript and PaperClip are the only 8-bit Atari word processors that offer macros and arithmetic functions. The macros let you type out an assigned string of characters by pressing one key. Superscript's math processing is outstanding. You can calculate in columns, rows or tables within the text. In fact, you can automate the arithmetic with macros to create a mini-spreadsheet—especially since text width can be scrolled up to 240 columns across.

Print formats are very flexible and easy to customize. You can even print every other page, if you want to feed your paper through twice and produce a document that is printed on both sides of the page. And you can print alternating wide margins to allow binding.

Superscript comes with an expandable dictionary which the distributors say contains 20,000-words. Actually, you get to choose between two dictionaries, offering either British or American spelling. You add your own personal words to the main dictionary simply by typing them in and pressing a single key.

The program loads text only by line units, so you can run out of file space after 780 carriage returns. Fortunately, the disk storage scheme is more efficient.

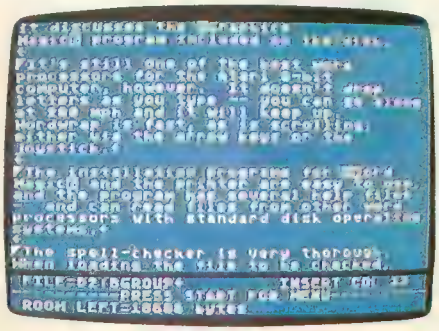
Superscript requires an Atari XL with at least 64K, or a 130XE. On the 130XE, the program lets you load two files into memory and flip back and forth between them. Just as in First XLEnt, you can move text between the dual files even though the windows are not onscreen at the same time.

Especially if you use a lot of arithmetic in your text files, Superscript should be seriously considered as your word processing choice.
$59.95. Progressive Peripherals and Software, 464 Kalamath Street, Denver, CO 80204. (303) 825-4144. (Reviewed in **Antic**, March 1986, page 13.)

WORD MAGIC

Word Magic from The Catalog is one of the best all-around word processors for the Atari 8-bit computer. It doesn't drop letters as you type—you can go along at 200 mph and it will keep up. Wordwrap is fast, as is scrolling, either via the arrow keys or the joystick.

The installation programs for Word Magic and the printer are easy to use. The program has several help files, and it can read files from other word processors that use standard disk



operating systems. As with most products from The Catalog, the Word Magic documentation is on the back

continued on next page

of the program disk.

Like PaperClip, Word Magic occasionally locks up, we found. So it pays to save your file often. Also, Word Magic stores a line with only a single carriage return as 40 bytes. It treats the 39 screen spaces after the return as bytes in the file, even though they're useless. Word Magic loads the printer driver from disk each time it prints. This is a comparatively slow process.

One of the best features of this word processor is its spell-checker. Spell Magic ($19.95. The Catalog, APO144.) isn't literally *part* of Word Magic, but the programs definitely work hand-in-hand. And Word Magic can be copied to a disk containing Spell Magic, which makes things easier and faster.

The spell-checker is very thorough —although it takes some time to load the 34,000-word dictionary. When you load the file to be checked, the program counts the total words and unique words, prompts you to insert your personal add-on dictionary, if any, and then to insert the Spell Magic Dictionary. Spell Magic slowly scans the disk, which takes over 10 minutes. But then it very quickly checks through your document. Spell Magic also works with any other word processor that uses standard Atari DOS.

$19.95. The Catalog, AP130. $29.95 for 130XE version including Spell Magic, APO160.

HOMEPAK HOMETEXT

Batteries Included's **HomePak** is best known for HomeTerm, an excellent telecommunications program. It also includes **HomeText**, a good introductory word processor and HomeFind, a good introductory file manager. All three programs can easily share data files.

HomeText's maximum file size is only 6,620 bytes (1,000 to 1,500 words), which makes it suitable primarily for writing personal letters or short memos. It has very few editing commands, and its printing and storage commands can be accessed only by leaving the text window. Its stylized character set is somewhat distracting.

But HomeText has an outstanding block-move function that leaves most of the others in the dust. Block move, delete and copy occur almost instantly—but of course the small file size maximum is a factor here.

HomeText is easy to use. If the command letter doesn't start the command word, at least it's *in* the command word and is highlighted—as in EXIT to Menu.

For some reason, HomeText's command symbols are more than one character long. In HomeText, the paragraph symbol is "Indnt →5." Highlighting a single letter in a word, as in EXIT above, makes it hard to read.

$19.95. Batteries Included, 30 Mural Street, Richmond Hill, Ontario, L4B 1B5, Canada. (416) 881-9941. (Reviewed in **Antic**, March 1985, page 74.)

Fast and Facilitating.

DISKETTE DUPLICATION
All formats. Quality tested. From 25 to 1000 duplicated in 24 hours—25,000 per week.

COPY PROTECTION
NoClone copy protection. Each application uniquely encripted.

DOCUMENTATION PRODUCTION
Complete coordination service. Text printing. Custom sleeves, labels and tabs.

PACKAGING ASSEMBLY
Full turnkey service. All types of binders. Shrink wrapping and shipping cartons.

DELIVERY FULFILLMENT
Computerized inventory. Pick and ship to your customer list. National delivery service.

disclone™

DISKETTE DUPLICATION AND PRODUCTION
1050 North Fifth Street, San Jose, California 95112
(408) 947-1161 OUTSIDE CA: 1-800-826-4296

CIRCLE 026 ON READER SERVICE CARD

THE AMAZING
VOICE MASTER®

ENTER THE FINAL FRONTIER OF MAN-TO-MACHINE COMMUNICATIONS

There is nothing else like it. Voice Master gives both speech output and voice recognition with this single hardware product! Your voice controls programs, or home appliances, robots, and more with spoken commands. Verbal response back gives status, verifies, or requests your reply! Speech output and recognition patterns are recorded in with your voice. Or use the voice of your friend, boss, teacher, mother, even the family pet! Programming is simple with new commands added to BASIC. A music bonus program lets you write and compose musical scores simply by humming the tune. Unlimited applications for fun, education, and commercial use. Design your own programs for profit. Speech and recognition quality unsurpassed by even the most sophisticated machines. Only Covox provides this high-tech marvel at a price less than most common peripherals.

The Covox Voice Master comes complete with all hardware and software for only $89.95. (Add $4 shipping and handling for USA, $6 Canada, $10 overseas.) Available for Commodore 64/128, Apple II, II+, IIc, IIe, Atari 800, 800XL, 130 XE. Specify when ordering. Visa, MasterCard phone orders accepted.

Call or write for FREE Voice Master Infopak and special combination package offers.

COVOX INC., DEPT. AC
675-D Conger Street • Eugene, Oregon 97402 • U.S.A.
Area Code (503) 342-1271 • Telex 706017 (Av Alarm UD)

CIRCLE 025 ON READER SERVICE CARD

New Products notices are compiled by the ***Antic*** *staff from information provided by the products' manufacturers. Antic welcomes such submissions, but assumes no responsibility for the accuracy of these notices or the performance of the products listed.*

WARSHIP, ROADWAR 2000, GEMSTONE HEALER, SSI CLASSICS, WARGAME CONSTRUCTION SET

Strategic Simulations Inc.
1046 N. Rengstorff Avenue
Mountain View, CA 94043
(415) 964-1353
48K disk

SSI's newest releases include **Warship** ($59.95), a tactical ship-to-ship World War II game, **Roadwar 2000** ($39.95), a science fiction adventure, **Gemstone Healer** ($29.95), the sequel to the role-playing adventure Gemstone Warrior, and the **Wargame Construction Set** ($29.95), which lets you build your own war, fantasy or science fiction games.

The **SSI Classics** line brings back proven hits—now at only $14.95 each. Titles include **Combat Leader**, **Computer Baseball**, **Computer Bismarck**, **Cytron Masters**, **Eagles**, **Fortress**, **Galactic Gladiators**, **Gemstone Warrior** and **Warp Factor.**

CIRCLE **260** ON READER SERVICE CARD

SUPER RAT, RAOS

Zobian Controls
1156 Old Mill Lane
P.O. Box 6406
Wyomissing, PA 19610
(215) 374-5478
48K disk

SuperRAT, a new high-accuracy digital version of Zobian's mouse for Atari 8-bit computers, can access every pixel in Graphics 8. It comes with AccuDraw for $69.95 and with RAOS for $99.95. **RAOS** ($49.95), the Rat-Actuated Operating System, gives you a "GEM" system on your 8-bit Atari. RAOS has its own icon-based desktop program, Z-DOS, replacing DUP.SYS, and a mouse-controllable, user-programmable windowing environment occupying 3K of RAM. RAOS uses a Player/Missile cursor to select icons and is compatible with most memory upgrades.

CIRCLE **255** ON READER SERVICE CARD

STAR FLEET 1

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(415) 571-7171
$49.95, 48K disk

In **Star Fleet 1**, each new level at the Officers Academy lets you role-play different characters and experience unique tasks. As a member of the Alliance, you must protect its outer regions against the invading Krellan and Zaldron empires. After graduating from the academy, you'll command one of 36 cruisers with a sophisticated array of weaponry at your fingertips.

CIRCLE **256** ON READER SERVICE CARD

U-PRINT

(printer buffer)
Digital Devices Corporation
430 Tenth Street, Suite N205
Atlanta, GA 30318
(404) 872-4430
$99.95, 16K
$119.95, 64K

One hundred percent Atari graphics-compatible, the new **U-Print** standard Centronics parallel printer buffers come with an extra Atari I/O port and a reset button.

CIRCLE **258** ON READER SERVICE CARD

BASIC ENHANCEMENTS II

First Byte
P.O. Box 32
Rice's Landing, PA 15357
(412) 627-3596
$24.95, 48K disk

First Byte's **Enhancements to BASIC, Version II** is a completely rewritten package, not just an upgrade. You can access many DOS functions in immediate mode. Enhanced BASIC II makes it easier to trace your program flow for debugging. The software renumbers, block deletes and provides automatic line numbering.

CIRCLE **257** ON READER SERVICE CARD

VIDEO TITLE SHOP, MERCENARY: 2ND CITY, FIVE FROM PSS

Datasoft
19808 Nordhoff Place
Chatsworth, CA 91311
(818) 886-5922
48K disk

Develop title screens on your Atari for your VCR or video camera, and then record the screens directly to videotape with **Video Title Shop** ($29.95). Choose from several type styles and sizes, create borders and add flair with the scrolling and fade-in/out features. The package includes Micro-Painter Plus for graphics that can be used as backgrounds to titles.

Experienced players of Mercenary will find the Second City on the other side of the Planet Targ, and once again you must escape. You'll be hindered by those warring planetary factions. **Mercenary: The Second City** ($14.95) must be played in conjunction with Datasoft's original Mercenary game disk.

Five new games come by way of England's PSS. **Tobruk** ($34.95) is a re-creation of the desert battle that threatened England's presence in North Africa. **Bismarck** ($34.95) puts you in command of the Royal Navy or the Bismarck itself. **Swords & Sorcery** ($34.95) is a role-playing fantasy that takes you through the underworld on a quest for secular and spiritual power. **Saracen** ($29.95) sends you through 100 mazes of increasing complexity as you seek and try to destroy the evil Saracen warrior. **Black Magic** ($24.95) puts you into 100 mazes of a fantasy world as you set out to destroy the forces that have overrun the kingdom of Marigold, restoring the Golden Age it once knew.

CIRCLE **259** ON READER SERVICE CARD

Return the favor. When you call a manufacturer or supplier about a product you've seen advertised or otherwise mentioned in ANTIC, please tell them so. This will help us to continue to bring you the latest information about products that will make your Atari computer an even more valuable investment in the future.
—ANTIC ED

STAccounts™
Integrated Accounting Package

For Atari ST Computers

No more spending thousands of dollars on an accounting package! For the price of some accounting packages alone, you can now purchase a full computer system that will satisfy your accounting needs and more. WHY!?

- **STAccounts is fast, powerful, easy to use, and affordable. Fully integrated A/R, A/P, I/C, and G/L.**
- **All printed output/reports can be altered, amended, or entirely reconfigured to your specific needs utilizing the Report Generator.**
- **Easy as a click of a mouse you can change from one module to another.**
- **STAccounts is written totally within Digital Research "GEM" operating system, fully utilising the Graphics and Mouse capabilities of the Atari ST Personal Computer.**

The combination of the STAccounts and the Atari ST Personal Computer will provide you with the solution to all your needs at an affordable price.

VISIT YOUR ATARI DEALER TODAY AND FIND OUT FOR YOURSELF.

PARTIAL LIST OF FEATURES

Accounts Receivable (A/R) – Integrated with A/P, G/L & I/C.
* Account numbers and/or names * Customers' names and addresses * Invoicing/statements * Credit limit * 10 tax rates * Immediate account access * Backorders. REPORTS include Sales Turnover, Aged Receivables, Customer Statements and much more.

Accounts Payable (A/P) – Integrated with A/R, G/L and I/C.
* Account numbers and/or names * Suppliers' names & addresses * Remittance advices/statements * Immediate account access * Credit limits. REPORTS include Purchase Turnover, Aged Payables, an Supplier Mailing List.

Inventory Control (I/C) – Integrated with A/R, A/P and G/L.
* 10 product groups * Turnover by quantity and value * Alpha supported item lists * Inventory linked to A/P * Editing of invoice information REPORTS include Inventory Turnover, Price Lists, Inventory Re-order list, and Stock Report.

General Ledger (G/L) – Integrated with A/R, A/P, and I/C
*256 G/L Accounts * Immediate account access * Account details including budgets * Variance percentages for budget against actuals. G/L REPORTS include Profit and Loss Statement, Trial Balance, Balance Sheet and statement of accounts.

Help
STAccount provides you with on screen help through the use of TEDDY, a screen icon If you become uncertain of your actions during the course of running the program, just click the left mouse button on TEDDY and a help screen for that particular section of the system will appear.

Report Generator
STAccounts Report Generator is a powerful tool integrated into the system. It will allow you to reconfigure reports using any of the system information. Provided with the system are a number of default reports which can be altered, amended, or entirely reconfigured for your individual company's needs, or create new reports as to your company requirements.

SYSTEM CONFIGURATION

STAccounts is designed to be used with either a 520 ST or 1040 ST, 0.5 or 1.0 megabyte drive with monochrome or colour monitor.

STAccounts and TEDDY are trademarks of Silicon Chip Limited
Atari ST is a trademark of Atari Corporation. Gem is a trademark of Digital Research
In Europe, STAccounts is available from Silicon Chip Ltd. 82 London Rd., Kingston, Surrey, England
Fax # 01-541-5398, Telephone 01-549-6857

TO ORDER AND FOR MORE INFORMATION CALL

1-416-479-1880

U.S. ORDERS SHIPPED FROM U.S.
NON U.S. ORDERS SHIPPED FROM CANADA

ISD MARKETING INC.
20 Steelcase Road, Unit 12
Markham, Ontario, Canada L3R 1B3

Send in this coupon with your credit card number, money order or check for U.S. $249.95
In Ontario add 7% sales tax
No C.O.D.

☐ CHECK ☐ MONEY ORDER
☐ AMEX ☐ VISA ☐ MASTERCARD Expires _____

Account No. _____
Name _____
Company Name _____
Address _____
City _____ State _____ Zip _____
Phone _____
Signature _____

STAccounts

CIRCLE 033 ON READER SERVICE CARD

THE ATARI 8-BIT QWIK PIX SOFTWARE FAMILY™

LETTERHEAD LABELS TITLES
MIX PIX-BORDERS-TEXT ANYWHERE! USE DESKTOP & MENUS!

FOR EPSON AND COMPAT. (STAR-GEMINI-PANASONIC-ETC.)

ONLY $29.95 EACH + $2.50 SHIPNG

SEND CHECK OR MONEY ORDER TO:

WHITE LION SOFTWARE

P.O.BOX 357 RIDGE, N.Y. 11961

CIRCLE 067 ON READER SERVICE CARD

CUSTOM 810 DISK DRIVE — $95.00

ASSEMBLED ON ACRYLIC BASE — NO CASE

FULLY FUNCTIONAL — XL COMPATIBLE — INCLUDES I/O CABLE & POWER SUPPLY

800/400 MODULES

NEW PARTS COMPLETE WITH IC'S

$9.50 EA.

All Modules Complete with IC's

- 800 Main Board
- 800/400 CPU with GTIA
- 800 10K "B" O.S. Module
- 16K RAM CX853
- 400 Main Board
- 800 Power Supply Board
- 400 Power Supply Board
- 800 XL Modulator

INTEGRATED CIRCUITS

$4.50 EA.

•Antic	CO12296	•CPU	CO14377/6502
•Pokey	CO12294	•CPU	CO10745
•PIA	CO14795	•PIA	CO10750
•CPU	CO14806	•ROM	CO12399B
•	CO10444	•ROM	CO12499B
		•ROM	CO14599B
		•GTIA	CO14805
		•Delay	CO60472

DISK DRIVE

CUSTOM 810 DRIVE

Fully operational 810 mounted on acrylic base. No case. Includes I/O cable and power supply.

$95.00

810 MODULES

810 Side Board	$29.50
810 Side with Data Sep	39.50
810 Power Board	$15.00
810 Analog Board	$10.00
Data Separator	$12.50

MISC. HARDWARE

600XL 64K Upgrade	$29.95
CO21697	$10.00
Fastchip for 800/400	$15.50
1050 FDC 2793	$19.50
850 Interface with Case	$120.00
Numeric Keypad	$15.00
850 or PR Printer Cable	$16.50

BOARD SETS

New Parts complete with IC's

800 4 PIECE BOARD SET
Includes 800 Main, CPU, 10K ROM, and Power Board $28.50

810 BOARD SET
Sideboard with Separator, Rear Power and Analog Boards $57.50

400 3 PIECE BOARD SET
Includes 400 Main, CPU and Power Supply Board $20.00

MANUALS

SAM'S Service Manuals for 800 or 400 or 800XL or 130XE	$19.50 ea.
520ST Service Manual	$39.50
Inside Atari Basic	$ 5.00
Pilot Primer	$ 5.00
ST-Machine Language	$17.50
ST-GEM Programming	$17.50
ST-Tricks & Tips	$17.50
ST-Internal	$17.50

850 BARE BOARD

Includes Parts List, Instructions $10.00
With all IC's $42.50

CONNECTORS

I/O 13PIN PC Mount	$4.50
I/O Cable Plug Kit	$4.50
30 Pin Cart. Socket	$4.50

EDITOR/ASSEMBLER

Editor/Assembler Cartridge
Write your own High Speed 6502 Language Programs.
Written by Atari. Works with all Atari Computers except ST.
Manual not included $10.00
Cart. w/Atari Roots $22.95

BASIC CARTRIDGE

Basic Rev. "A" Cartridge works with all Atari Computers except ST. Includes manual.
800XL Owners Note! Use this Cartridge while programming to eliminate the severe errors in the Built-in "B" Basic $10.00

POWER PACKS

Replacement Transformer for:
800/400, 810, 1050, 1200XL, 1020 ..... $14.50

ATARI ROOTS BOOK

A Guide to Assembly Language Programming $14.95

SOFTWARE

Atari Joystick	$ 7.00
O.S.S. Action	$58.00
O.S.S. Mac/65	$58.00
O.S.S. Basic XE	$58.00
O.S.S. Basic XL	$42.00
ST-O.S. Pascal	$68.00
Donkey Kong Cart.	$5.00
Pac-Man Cartridge	$5.00
Eastern Front Cart.	$5.00
Crossfire Cart.	$5.00
Chicken Cartridge	$5.00
Clown & Balloon Disk	$5.00
Stratos Disk	$5.00
Serpentine Disk	$5.00
Steller Shuttle Disk	$5.00
The Factory Disk	$5.00
Spanish Lessons	$7.50
Basic Cartridge	$10.00
Editor Assembler Cart.	$15.00
Q*Bert Cartridge	$10.00
Popeye Cartridge	$10.00
Kindercomp Cart.	$10.00

SERVICE RATES

Flat Service Rates below include Parts & Labor, 60-Day Warranty

800	$39.50
850	$39.50
600XL	$49.50
1200XL	$49.50
810	$69.50
800XL	$49.50
1050	$85.00
800 Keyboard Repair	$25.00

Above units repaired or exchanged with rebuildable exchange. Include $7.00 return shipping and insurance.

10K Rev. "B" O.S. Upgrade
for older 800/400's
End printer/disk drive timeouts and OTHER ERRORS. Many new programs require Rev. B. Type the following peek in Basic to see if you have Rev. B. **PRINT PEEK(58383).** If the result equals 56 you have the old O.S. **Three Chip ROM set with instructions .... $7.50. Complete 10K Rev. B module $9.50**

GTIA Upgrade For 800/400
Add additional graphics modes and make your older computer compatible with the latest software. **Instructions included $4.50**

810 Drive Upgrade
Greatly improve the performance of your older 810. Stabilize the speed with the addition of an analog and redesigned rear board. **Instructions included ..... $ 27.50**

AMERICAN TV

Mail Order and Repair ..... 15338 Inverness St., San Leandro, CA 94579
Business Address ..... 1988 Washington Ave., San Leandro, CA 94577

NO MINIMUM ORDER! We accept money orders, personal checks or C.O.D.s. VISA, Master/Card okay. Credit cards restricted to purchases over $20.00. No personal checks on C.O.D. – **Shipping:** $4.00 shipping and handling on orders under $150.00. Add $2.00 for C.O.D. orders. California residents include 6½% sales tax. Prices subject to change without notice.
Much more! Send SASE for free price list.

*Atari is a registered trademark of Atari Corp

CALL TOLL FREE
1-800-551-9995

IN CA CALL
415-352-3787

CIRCLE 008 ON READER SERVICE CARD

Wear It Out!

A

T-SHIRTS. This Official Antic T-Shirt is worn by many of our staff. Made of cotton and polyester to hold their shape and good looks. Blue only. S–M–L–XL

B

SWEATSHIRTS. For the cooler days this sturdy sweatshirt is made of cotton and acrylic for warm comfort and perfect fit. Blue only. S–M–L–XL

C

CAP. The Publishers special! This beautiful all-cotton cap is fully adjustable to fit you perfectly and is a favorite of the Publisher of Antic. Blue only. One size fits all.

D

BACK PACK. For your disks, printouts, school books and lunch. This 100% nylon pack has a zippered top, velcro front pouch, and adjustable straps.

RUSH Today To:
Logo/Antic
1380 Piper Drive
Milpitas, CA 95035

Name _____

Address _____

City _____

State _____ Zip _____

(Please allow 8–10 weeks for delivery in U.S.; Foreign orders up to 3 months.) NOTE: Foreign orders payable in U.S. dollars by International Money Order. Foreign shipments may be subject to additional shipping charges.

Please send me the following items that I've marked below:

Qty.	Item	Size (S–M–L–XL)	Price each	CA Tax each	Post. & Hand. each	Total each
	A. T-Shirts		$ 6.50		2.00	
	B. Sweatshirts		$12.00		2.50	
	C. Backpacks	———	$ 9.50		2.25	
	D. Hats	———	$ 5.50		1.50	

TOTAL ENCLOSED _____

GUARANTEE: Any item may be returned in perfect condition within 10 days for full refund.

130XE Double Feature

BY NAT FRIEDLAND, ANTIC EDITOR

Bill Wilkinson cares. **Antic** has been "blessed" on a number of occasions by long, irate letters from the founder of Optimized Systems Software (creators of BASIC XE, MAC/65, ACTION!, etc.), taking us to task for some offense or other against his vision of pure Atari knowledge.

Often enough, we agree with the Wilkinson critiques and sincerely try to mend our ways. Even when we don't agree with Bill's specific objections, we pay close attention to what he has to say. Not only is Bill Wilkinson among the leaders in independent Atari software development, he's also somebody who's concerned enough about Atari issues to regularly write **Antic** three-page, single-spaced letters arguing his viewpoints.

HOW IT STARTED

Our latest "letter-bomb" from Wilkinson concerned an October, 1986 I/O question about the extra memory in the Atari 130XE. Never one to mince words, Bill informed **Antic** that he considered our answer "incorrect, incomplete and misleading" and full of "half-truths."

Having gained our full attention, Bill then proceeded to demonstrate how he felt the 130XE RAM banks should be taught. This demo consisted of a detailed article which he said he hoped we would publish. No problem. We've been trying to get him to write more **Antic** articles for years. (Wilkinson wrote the original *TYPO* automatic listing proofreader program.)

Bill's article in this issue, *Understanding the 130XE RAM Banks* adds many useful and practical details to the information that **Antic** published in Ian Chadwick's *130XE Memory Management* (November, 1985). We're delighted to be able to bring Bill's words of wisdom to you—even under these somewhat unusual circumstances.

WAS ANTIC WRONG?

Brian Schade's question in the October, 1986 I/O Board was short and specific. He asked, "What is the significance of having 128K memory in the Atari 130XE, if only 16K can be accessed at one time, per program?" Under **Antic's** usual deadline and space pressures, this did not seem to call for a vast amount of technical detail.

So our technical staff opted for a short, admittedly general answer that essentially was meant to convey to a large audience (an audience varying widely in technical knowledge) the overall approach to accessing more than one bank of extra RAM in the 130XE. As we wrote—correctly—in the October I/O, accessing the 130XE RAM banks does indeed come down to "virtually instantaneous switching" between separated active blocks of memory.

By now—with the wonderfully clear understanding of hindsight—we can see that although our answer was not really incorrect, we unfortunately left room for some misinterpretations by keeping the information short and general. To do anything useful with 130XE RAM banks, an advanced programmer would need to know details about how only certain memory banks are available, only under certain conditions and only via certain programming techniques.

To adequately explain all this would require an article of at least a thou-

continued on page 36

BILL WILKINSON SPECIAL

RAM Banks on the 130XE

Access the full 128K memory

I have included a diagram *(Figure 1)* that will help you understand all that follows. Please study it before you continue. As the diagram shows, you should visualize the Atari 130XE as a 64K computer with several "extra" banks of memory tacked on.

Why a 64K computer? Quite simply, because that is as much memory as a 6502 microprocessor can address. Technical reason for this: It uses 16 address lines, and 2^16 is 65536—which is 64K, the number of possible unique addresses.

What is the "default" configuration of this 64K computer? Just follow down the leftmost column of boxes in the diagram. There's 10K of OS (Operating System) ROM, 2K of I/O, etc. And yes, if you add it all up, it comes to 64K. If you simply turn on your computer and do nothing special, this default configuration is what you get. Notice that Atari BASIC is "on" and available in the default configuration!

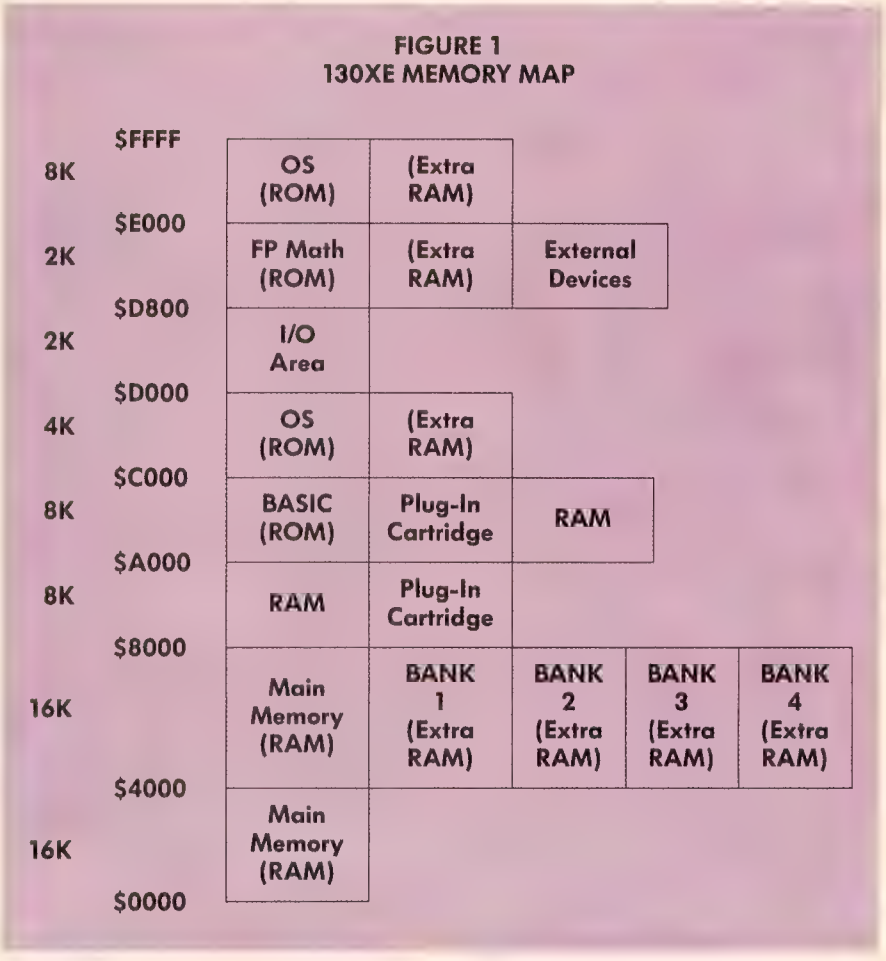
There are three ways to alter this configuration. First, you can plug a cartridge into the port on the back.

Depending on the design of the cartridge, either 8K (Atari Assembler/Editor) or 16K (cartridge version of AtariWriter) of your memory becomes dedicated to the cartridge. Notice that there is no way within the 130XE to override a cartridge! (OSS SuperCartridges have special circuitry which allows them to be turned off via software. But that circuitry is in the cartridge, not the 130XE.)

Second, in a similar fashion, hardware devices which plug into both the cartridge and the extended interface slots may "pre-empt" the area normally used by the floating point math routines in the OS ROMs. (This is how the SupraDrive hard disk and several devices from ICD are hooked into the memory map of a 130XE.)

Finally, the easiest way to control the selection of the "Extra RAM" (look for this designation in the diagram) is via PORTB, the hardware control port at location $D301. I am not going to discuss how the various bits in this control port work, since Atari's manual gives a brief description and since. . . Well, keep reading.

FIGURE 1
130XE MEMORY MAP



HOW EASY??

I said the "easiest way" to use more of your 130XE's memory than the default configuration provides is to use the $D301 control port. But even though it's easiest, it is not at all easy! This is *not* a contradiction: A 90% difficulty rating may be easier than 95%

continued on next page

BILL WILKINSON
continued from page 35

or 98%—but it is still pretty tough.

My recommendation: If you are not *at least* an intermediate-level assembly language programmer, *don't* mess with the extra RAM banks. It is very, very easy to lock up your programs irretrievably if you use the $D301 port at all.

You can mistakenly turn off the piece of memory your program currently occupies, thereby causing the CPU to get completely lost. You can turn off the OS ROMs just before an interrupt happens and send the computer to sleep. Or, more subtly, you can disable the carrier detection capability of an XM301 or 1030 modem. And I've just started.

The extra RAM banks are located between $4000 and $8000. Be sure the other parts of your program avoid this range.

If you *are* an intermediate assembly language (or perhaps ACTION!) programmer, you might be able to take advantage of the extra RAM banks which are located between $4000 and $8000. Just be sure that the program which changes the banks does *not* reside anywhere in this range or use data stored in one bank while another is active.

But I would still avoid the RAM from $C000 upwards. Aside from the difficulty of handling such things as interrupts, character sets, etc., more and more versions of DOS are beginning to use that area. This makes sense because it is difficult for the average programmer to access this memory. So why not let the (hopefully expert) DOS programmers use it to save space in the more readily programmable "lower" memory? DOS XL and SpartaDOS already serve you in this way, and I think I can confidently predict at least one more significant DOS in the offing. (*Is this the Atari 8-bit DOS for 3 1/2-inch disks, Bill?* —ANTIC ED)

BASIC SOLUTION

And what about you Atari BASIC programmers? How can you use the 130XE's extra memory banks? Two good ways: 1. Use a commercial RAMdisk program such as the one provided with Atari DOS 2.5 and be happy. 2. Use BASIC XE. This may seem a bit self-serving, since we at OSS produce BASIC XE. But the truth of the matter is that there is *no* equivalent of BASIC XE.

BASIC XE is the only language specifically designed to use as much of the 130XE's memory as possible. It lets you write programs as large as about 62K and *still* have about 32K left for data—variables, including strings and arrays. And all this capacity while maintaining 98%-plus compatibility with Atari BASIC. So you don't need to relearn all you already know. (Can I also mention that BASIC XE is two to six times faster than Atari BASIC? Faster even than an IBM PC? Thanks.)

SUMMARY

The bad news is that writing programs to use the "extra" memory of an Atari 130XE is not at all easy (except with BASIC XE). The good news is that you do have access to a full 64K of memory at all times. 'Nuff said?

Bill Wilkinson is the longest-running Atari programming columnist and the founder of Optimized Systems Software. In May, 1986 OSS won the Antic Award for Lifetime Achievement, honoring such major programming tools as MAC/65, ACTION!, Personal Pascal and BASIC XE.

BASIC XE
OSS, Inc.
1221-B Kentwood Avenue
San Jose, CA 95129
XL/XE, cartridge plus disk
$79 (408) 446-3099

130XE DOUBLE FEATURE
continued from page 34

sand words. Fortunately, Bill Wilkinson took the bait and saved us the work of writing just such an article. Yes, we confess. . . the whole thing was just a sneaky plot to get Bill to write something for **Antic** again! (Big grin.)

BILL'S CHALLENGE

Several of the conclusions Bill came to in his excellent article really made the **Antic** technical staff sit up and take notice. Wilkinson stated, "Writing programs to use the 'extra' memory of a 130XE is not at all easy (except with BASIC XE). . . . If you are not *at least* an intermediate level assembly language programmer, *don't* mess with the extra RAM banks."

Not that we exactly disagree with all that. BASIC XE—an OSS product—is clearly the most accessible tool for controlling the 130XE's extra memory. And for those who try to access the full memory of the 130XE without a very clear understanding of memory addresses, Bill's article lists a number of the interesting ways you can crash your program.

However, it did seem to the **Antic** technical staffers that practical 130XE memory bank switching should be available from standard Atari BASIC if sound programming methods are used. The result of our explorations is this issue's *130XE Slide Show* by Bill Marquardt (with additional help from Patrick Bass and Charles Jackson).

130XE Slide Show is a short, clean program that loads two different Micro-Painter pictures into each of the four extra memory banks and flips between the eight pictures so fast that the eye can barely follow. We have left it running all day long without any crashes.

But Bill Marquardt agrees with Wilkinson that he couldn't have written a bank switcher in BASIC without previously gaining extensive programming experience in assembly language. For more details about the offbeat techniques required, see the *130XE Slide Show* article.

ATARI 520 ST/COLOR GAMES

FRACTALS: Generate amazing op-art like images in spectacular colors. Zoom in on the Julia curves by up to 100 million times by pointing and clicking! Travel in this beautiful space and enjoy an inexhaustible family of fractals. A typical fractal (131*161 dots) takes about 10 minutes to generate, but you can make pseudo-fractals in about 10 seconds!

MAZE: Develop and test your skills at showing the path through mazes. This program generates random mazes of six different sizes/complexities, and will show you the path if desired.

TINGO: You and your opponent alternate placing dots on a checkerboard to get five dots in a row. Play against a friend or the computer. The computer has six different skill levels, and will always respond immediately. A man versus artificial intelligence game!

BONGO: Find the hidden symbols/colors as in a battleship game. Test your reasoning/ deductive skills with this laid back teaser! 20 game modes.

CULTURE: You have to be fast and accurate using the mouse to prevent the Reds from taking over... 36 different game settings to challenge your eye to hand skills!

PRICING:

1 Program	$20.-
2 Programs	$35.-
3 Programs	$46.-
4 Programs	$54.-
5 Programs	$60.-

All of the programs are fully mouse and menu driven, and have a special demonstration mode to show capabilities and to entertain. They are written in Pascal for fast and robust operation. The executable code is supplied a low density floppy disk (3.5/SS/135TPI), and comes with a 3 month warranty. Archival copies allowed.

Order Today the Easy Way - by Mail! Programs not sold in stores!
Atari 520ST is a trademark of Atari Corp.

Please Check the Desired Programs..

( ) FRACTALS
( ) MAZE
( ) TINGO
( ) BONGO
( ) CULTURE

Mail to: Fred Buch
984G Kiely Blvd.
Santa Clara
CA 95051

Name: _____ Amount Enclosed _____

Street: _____ State/Zip: _____

City: _____

CIRCLE 030 ON READER SERVICE CARD

THE LAST SPORTS GAMES YOU'LL EVER NEED!

"If you're looking for the most realistic simulation around, 3 IN 1 FOOTBALL should be your first draft choice."

—The Chicago Tribune

"[It] assures you endless hours of gridiron glory and satisfaction"

—Commodore Power/Play

Now you, too, can play the game that Commodore, Apple, and IBM owners have been playing for years. Didn't like the way last season went for your favorite team? Here's your chance to do better as the coach. Or imagine the possibilities of dream matchups like the '72 Dolphins vs. the '85 Chicago Bears or one of the great Oklahoma-Nebraska games. Now YOU can know the the outcome of some of the greatest sports matchups that never were!

3 IN 1 FOOTBALL

Includes Stats Compiler for each player and team • you choose from 14 offensive plays and 6 defensive formations • includes 176 college teams, the 28 NFL teams and 14 USFL teams from the '85 season PLUS 174 great college and 189 great pro teams of the past • play head to head with a friend, you vs. the computer coach or computer auto-play

OTHER PAST SEASONS' TEAMS DISKS AVAILABLE AND 1986 FOOTBALL TEAMS READY PRIOR TO PLAYOFFS AND BOWL GAMES.

Available at your local dealer or send check or money order for $39.99 plus $2.00 for shipping and handling. Visa and MasterCard accepted on phone orders only.

Available for Atari 520ST, MacIntosh, and Atari 800 (64K)/800XL/130XE

LANCE HAFFNER GAMES

P.O. Box 100594 • Nashville, TN • 37210 • 615/242-2617

CIRCLE 034 ON READER SERVICE CARD

New Replacement Printed Circuit Boards (PCB) w/parts

800 Main	$10	16K RAM	$10	810 side w/DS	$30
800 Power	$5	10K OS	$10	810 Analog	$10
CPU w/GTIA.	$10	810 DS	$5	810 Power	$15
400 Main	$10	825 PCB*	$25	1200 XL PCB	$35
Power Paks 800/810	$15 ea	800 XL Power			$25 ea
130 XE Keyboard	$35.	800 XL Keyboard			$25

Hard to find Integrated Circuits:

$4.50 each or 4.00 in quantities of 10:

GTIA	BASIC REV A	ASSEMBLER REV A
800 CPU 6502	800 ANTIC D	1771
800 OS ROMS	XL CPU 6502C	POKEY
6520 PIA	MPU 6507	PIA 6532
RAM 6810	810 ROM C	VCS TIA 444

$12.00 each:

XL ANTIC E	XL/XE OS	850 ROM B	1050 ROM ($10.)
BASIC REV C	XL MMU	XE MMU	

Public domain software (520/1040ST and 8 Bit):
Too many titles to list ..... Disks are 5.00 each
Write for complete list. *Missing some chips.

SS 810 Disk Drive	$110.00
SS 810 with Happy	$199.95
With B&C Black Anodized Case	$140.00 ($120.)
With Case and Happy Upgrade	$220.00 ($200.)
810 PCB Set w/side, DS, Power, Analog	$55
810 Drive Mechanisms Tandon or MPI	$60
Field Service Manuals 800/400, or 810	$25 ea
For 1050, 1025, 1027, 825, 850, 800XL or 1200XL	$20 ea
1050 DIAG. Disk (not for happy drives)	20.00
810/1050 DIAG. Cart	25.00
Salt 2.07 400/800 Cart	25.00
Salt SE 800XL Cart	25.00
CPS Super Salt Cart	25.00
Atari Lab Temp Parts Kit	10.00
Atari Trak Ball	25.00
De-Re Atari	$10.00

5¼" Diskettes in Bulk:
10 for 7.50 100 for 50.00 1000 for 400.00
Note: Disks may contain discontinued software and may not be notched. All disks are new.

CABLES

810 VER 7 HAPPY $119.95

ST INTERNAL CLOCK $44.95

1200 BAUD MODEM $125.00

800 PCB Sets Main, CPU, 10K OS, Power & RAM $40 Less RAM $30

SUPER SPECIAL!! 810 DISK DRIVE IN BROWN PLASTIC CASE WITH I/O CABLE AND POWER SUPPLY $110 WITH HAPPY V7.0 $199.95

DISKS 1050 HAPPY $150.00

ST CONNECTORS

MAC ROMS FOR ST $30

($) Prices in parenthesis ($) are less I/O Cable and Power Pak. Add $10.00 each.

B&C computervisions

ALL SALES FINAL

(408) 749-1003

3283 Kifer Rd., Santa Clara, CA 95051
Hours: Tuesday-Friday 10am-6pm/Sat. 10am-5pm
Terms: Calif. Res. add 7% sales tax. No orders under $20.
We ship UPS COD, Prepaid or MC/Visa. Add shipping (minimum $5.)

CIRCLE 015 ON READER SERVICE CARD

Flash 8 pictures lightning-fast

130XE Slide Show

BY BILL MARQUARDT, ANTIC TECHNICAL ASSISTANT

Learn to use the extra 64K memory in your 130XE. These short programs demonstrate how you can use Atari BASIC to control RAM bank switching. 130XE Slide Show works on Atari 130XE computers (or compatible memory upgrades) with disk. This article's first listing, the simpler 130XE Bank Switcher routine, will work on cassette as well as disk.

"How can I use the 130XE's extra memory in my own BASIC programs?"

This is one of the questions asked most often of the **Antic** technical staff.

Elsewhere in this issue, Bill Wilkinson warns us of the difficulties in using Atari BASIC to control 130XE RAM bank switching. Ian Chadwick offered similar advice in the November 1985 **Antic** (*130XE Memory Management,* page 28). You should carefully read both articles before trying this technique in your own programs.

Although bank-switching programs are best written in assembly language, Atari BASIC is powerful enough to demonstrate the "bare bones" of the technique. These two demonstration programs are short, but surprisingly effective.

And even if you don't understand the processes involved, you can still enjoy using your 130XE Slide Show program. It is ideal for user group meetings, trade show displays, or even short animation sequences.

BANK SWITCHER

Type in Listing 1, SWITCH.BAS, checking it with TYPO II, and SAVE a copy (to disk or cassette) before you RUN it. This short stand-alone program fills the first "extra" 16K memory bank with letter A's, the second bank with B's, the third with C's and the fourth with D's. The program then "switches" rapidly between banks, displaying the contents of each bank on a Graphics 2 screen.

Each screen is located in a different 16K bank of the 130XE's extended memory. When you type RUN, you'll first see your 130XE slowly fill each bank with the appropriate letter. The letters will then begin flashing before your eyes as one bank is switched "in" and another is switched "out."

130XE SLIDE SHOW

Listing 2, SLIDES.BAS, is a considerably more useful program even though it's not that much longer than the first listing. Type in SLIDES.BAS, check it with TYPO II, and SAVE a copy (to disk only) before you RUN it.

SLIDES.BAS loads eight of your favorite microscreens into RAM and continuously flashes each picture onscreen in a digital slideshow—at adjustable speeds that you can make blinding-fast if you desire.

Use Micro-Painter or PD Micro-Paint Artist ($10, The Catalog, PD0053) to create your screens.

If your microscreens are in a different format, you can use the *Rapid Graphics Converter* (**Antic**, Novem-

ber 1985) to convert your pictures to Micro-Painter format. (Antic Disk owners: We have included *Rapid Graphics Converter* as a bonus program, CONVERT.BAS, on the monthly disk.)

After you have selected your microscreens, copy them to your SLIDES disk using filenames "D:F1", "D:F2" and so on up to "D:F8".

If you'd rather use other filenames, type them in at lines 180 to 210, or replace these lines with your own input routine.

When RUN, SLIDES.BAS loads all eight microscreens into the XE's "extra" RAM. You'll only see four of these pictures as they load, though, and their colors will not be correct. But once all eight screens are loaded, the colors are corrected and the slide show begins.

You can adjust the speed of the slide show with a paddle controller plugged into joystick port 1.

HOW IT WORKS

Each Micro-Painter picture contains 7680 bytes of picture information and four bytes of color information. This is just less than 8K of memory. We can put two of these pictures into each 16K bank of memory. By combining page flipping and bank switching techniques, we are actually using almost all of the 130XE's extra memory!

On the older Ataris (those with four joystick ports), ports 3 and 4 were controlled by PORTB (54017, $D301). The 130XE, having only two joystick ports, uses PORTB to determine how the memory will be used by the 6502 CPU and the ANTIC chip.

Primarily, we're interested in bits 2 through 5 of PORTB. Bits 0, 6 and 7 will be set (equal to 1), giving us a base value of 193 (1+64+128 = 193).

A zero in bit 5 tells ANTIC to use the extended memory. Otherwise, ANTIC will use main memory. Bit 4 is used the same way for the 6502. The variable MODE controls bits 4 and 5. Bits 2 and 3 determine which of the four 16K banks of the extended memory will be used.

Using this information, we can use the following formula to do all of our

continued on page 43

After extensive development and 16-bit GEM technology application, RAOS (Rat Actuated Operating System) is now ready for 8-bit Atari computers. Using efficient memory management and data manipulation, RAOS creates a powerful windowing environment, yet uses an incredibly small amount of memory.

It totally transforms your computer. Your Atari's operating system now has the GEM features of the ST, like a mouse-controlled *arrow-pointer,* which is used to open the *pull-down menus* or select *icons,* or open *multiple screens* or *windows,* all at the click of a RAT button!

All this for an incredible price. RAOS is the most powerful windowing environment for *any* 8-bit home computer on the market, and its very low price makes it available to *all* Atari owners.

We designed RAOS around you. Routines such as the mouse controller make using the digital SuperRAT in your own programs as simple as a single PEEK command! Our DESKTOP program Z-DOS, included in RAOS, lets you access your disk files with ease, replacing keyboard input with icons and the arrow-pointer, just like the MacIntosh™ and ST systems. RAOS also can use the original RAT.

And we improved our RAT, but kept the price low, low, low! The new SuperRAT is a *digital* mouse with *infinite* resolution and accuracy. We gave it two buttons and a rubber-coated ball for better feel and response. It even matches the color of the computer. And it's available with ACCU-DRAW for only $69.95, or in the SuperPAT/RAOS system for only $99.90!

Order *now* by M.O. or C.O.D. for pre-Christmas delivery!

Zobian Controls

P.O. Box 6406, Wyomissing, PA 19610 215/374-5478

YES! ☐ Send me the digital SuperRAT/RAOS System for only $99.90, plus $3.00 shipping. Save $20.00

☐ Send me the SuperRAT with Accu-Draw for only $69.95, plus $2.00 shipping.

Name _____

Address _____

_____ Zip_____

Paid by ☐ check ☐ money order ☐ C.O.D.

CIRCLE 080 ON READER SERVICE CARD

With the introduction of the ST™ computers comes a new kind of computer language:

PRAISE.

"The most advanced, most powerful microcomputer your money can buy."
—Creative Computing

"The best hardware value of the year."
—Infoworld

"We have spent the last three months evaluating the Atari and have come to the conclusion that it can't be beat as a low-cost telecommunications terminal, drafting workstation, or for quick graphics visualization." *—Microtimes*

"We are most impressed with the clarity of the graphics, with the speed of the disk I/O (input/output), and with the ST's value." ***—Byte Magazine***

"With the impressive ST, Atari has delivered on its promise of power without the price." *—Family Computing*

"Faster and with better graphics capabilities than an IBM®/AT™, it could be a great vehicle for low-cost networks, desktop publishing and visual database management software." ***—Microtimes***

"All of the displays are clear, sharp, readable, and flicker free. We were particularly impressed by the clarity of the high-resolution monochrome."
—Byte Magazine

"The ST's readily apparent strong point is speed. Compared to the Macintosh™, working with the ST is extraordinary."
—John Dvorak, San Francisco Examiner

"Since the pinouts are standard, it is also possible for various software packages to support an even wider range of output devices—even faster printers and high-end plotters." ***—Microtimes***

"The ST is noticeably faster than the Macintosh, not only because of the faster clock rate but because it has a faster disk drive." *—Personal Computing*

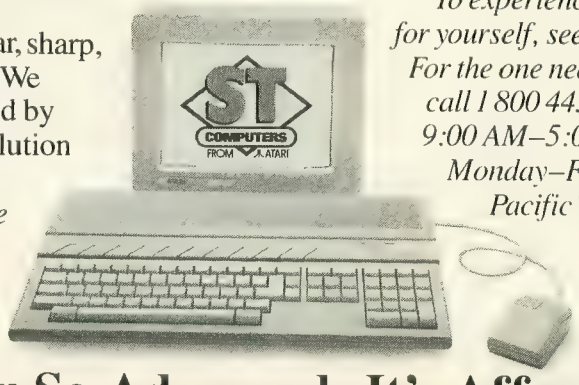
"The ST is an amazing bargain, much more of a computer 'for the rest of us' than Mac ever was." ***—Byte Magazine***

"From here on you had better think of Atari as a major player in the computer game."
—Jerry Pournelle, Infoworld

The 520ST™ with 512K of memory is under $800. The 1040ST™ with a full megabyte is under $1,000. No wonder the experts are impressed.

To experience the ST excitement for yourself, see your Atari dealer. For the one nearest you, call 1 800 443 8020. 9:00 AM–5:00 PM Monday–Friday Pacific Time.

ATARI®



Technology So Advanced, It's Affordable.

Atari, ST, 520ST and 1040ST are trademarks or registered trademarks of Atari Corporation.
IBM and AT are trademarks or registered trademarks of International Business Machines Corporation. Macintosh is a trademark licensed to Apple Computer, Inc.
© 1986 Atari Corporation

S & S Wholesalers, Inc.

226 Lincoln Road Miami Beach, FL 33139

1-800-233-6345
ORDERS ONLY

WHOLESALE TO THE PUBLIC
BUY BELOW DEALER COST!

ATARI HARDWARE

130XE Computer	$134.90
65XE Computer	$ 87.90
800 XL Computer	$ 79.90
1200 XL Computer	$ 69.90
1050 Disk Drive	$134.90
1027 Printer	$ 99.90
XMM801 Printer	$199.90
XM801 Modem	$ 37.90
XC11 Data Cassette	$ 37.90
Atari Light pen	$ 37.77
Atari Touch Tablet	$ 42.77
800 XL Power Supply	$ 29.77

EPSON PRINTERS

LX 80 w/Tractor	$259.90
FX 85	$379.90
FX 268	$504.90

PANASONIC PRINTERS

KXP 1080	$199.00
KXP 1091	$249.00
KXP 3131 Daisy Wheel	$279.00
Panasonic Ribbons	$ 8.77
Parallel Printer Cable	$ 16.70

ST SOFTWARE

Hitchhikers Guide to Galaxy	$ 23.97
Infidel	$ 26.97
Leather Goddesses of Phobos	$ 23.97
Moon Mist	$ 23.97
Planetfall	$ 23.97
Sea Stalker	$ 23.97
Sorcerer	$ 26.97
Spellbreaker	$ 29.97
Starcross	$ 29.97
Suspect	$ 26.97
Suspended	$ 29.97
Trinity	$ 23.97
Wishbringer	$ 23.97
Witness	$ 23.97
Zork I	$ 23.97
Zork II	$ 26.97
Zork III	$ 26.97
Final Word	$ 87.00
Hex	$ 23.97
PC/Intercomm	$ 74.40
F-15 Strike Eagle	$ 23.97
Gunship	$ 23.97
Silent Service	$ 23.97
Soft Spool	$ 23.97
Time Bandits	$ 23.97
Your Financial Future	$ 23.97
A Mind Forever Voyaging	$ 26.97
Ballyhoo	$ 23.97
Cutthroats	$ 23.97
Deadline	$ 29.97
Enchanter	$ 23.97
ST Accounts	$144.77
Checkminder	$ 44.97
Chessmaster 2000	$ 27.97
Lands of Havoc	$ 11.97

ST SYSTEMS

COLOR SYSTEM

520 ST Computer	
SF 354 Disk Drive	
SCI 224 Color Monitor	
Basic/Logo/First Word	$779.00

MONOCHROME

520 ST Computer	
SF 354 Disk Drive	
SCI 24 Monitor	
Basic/Logo/First Word	$569.00

1040 COLOR & MONO SYSTEMS

IN STOCK
CALL FOR PRICING...

KOALD CLOSEOUT

Koald Muppet Pad	$ 19.77

MICROPROSE

Aerojet	$ 20.77
F15 Strike Eagle	$ 19.47
Conflict in Vietnam	$ 22.77
Gunship	$ 22.77
Silent Service	$ 24.77

BATTERIES INCLUDED

Consultant	$ 35.77
Paperclip	$ 35.97
Paperclip w/Spell	$ 47.77

ST SOFTWARE

ALT	$ 17.97
Animator	$ 23.97
Back-up	$ 23.97
Business Tools	$ 29.97
Calendar	$ 17.97
Cards	$ 23.97
Cornerman	$ 29.97
D.F.T.	$ 29.97
DOS Shell	$ 23.97
Easy Record	$ 47.97
Echo	$ 23.97
Eight Ball	$ 23.97
Flip Side	$ 23.97
Gold Runner	$ 23.97
Intro to ST Logo	$ 29.97
Kissed	$ 23.97
Financial Cookbook	$ 30.97
Golden Oldies	$ 21.97
New Technology Coloring Book	$ 12.97
Ogre	$ 24.97
Skyfox	$ 27.97
Ultima III	$ 36.67
Super Huey	$ 23.77
Alternate Realty "The City"	$ 29.77
Mercenary	$ 23.77

ATARI 128K Word Processing System

130XE Computer	
1050 Disk Drive	
1027 Printer	
Atariwriter Plus	
2 Games	$377.77
w/ XMM 801 Printer	$447.77

ST HARDWARE

520 ST Computer	$399.90
SF 314 Disk Drive	$207.77
SF 354 Disk Drive	$149.77
SCI 224 Monitor	$297.77
SCI 24 Monitor	$167.77
SM 804 Printer	$199.77

ST HARD DRIVES

Atari 20MB	$ 649.90
Supra 10MB	$ 629.90
Supra 20MB	$ 639.90
SUPRA 30MB	$ 829.90
SUPRA 60MB	$1789.90

8 BIT BACK-UP PROGRAM

Chipmunk	$ 29.77

ACCOLADE

Dam Busters	$ 17.90
Fight Night	$ 17.90
Hardball	$ 17.90
Law of the West	$ 17.90

XLENT SOFTWARE

First XLENT Word Processor
Miniature Golf
Rubber Stamp

ST SOFTWARE

M-Copy	$ 47.97
M-Disk	$ 23.97
M-Dupe	$ 17.97
Major Motion	$ 23.97
Mi-Term	$ 29.97
Michtron BBS	$ 29.97
Michtron Utilities	$ 35.97
Mighty Mail	$ 29.97
Mission House	$ 23.97
Mud-Pies	$ 17.97
Personal Money Management	$ 29.97
Pinball Factory	$ 23.97
Pro Football Wizard	$ 23.97
VIP Professional	$ 94.77
Personal PASCAL	$ 44.97
Person Prolog	$ 53.97
Autoduel	$ 30.97
Data Manager ST	$ 47.97
Super Graphics ST	$ 29.97
Swiftcalc St	$ 47.97
Sylvia Porter	$ 47.97
Sylvia Porter Vol 2	$ 47.97

OKIDATA

Okimate 10	$124.77
Okimate 20	$134..77
Okimate 120	$224.77
Plug-N-Play	CALL

STAR MICRONICS

NX 10	$239.90
LU 1210	$199.77

DISKETTES

Sony DSDD 5¼"	$ 9.97
Memorex DSDD 5¼"	$ 8.97
Precision DSDD 5¼"	$ 7.97
Bonus by Verbatim DSDD 5¼"	$ 6.97
Sony 3½" DSDD	$ 25.50
Sony 3½" SSDD	$ 19.50
Winners 3½" DSDD	$ 24.00

MONITORS

Samsung 12" Green	$ 47.77
Nec 1225 Color	$124.77
Goldstar 12" Color	$127.77
Monitor Cable	$ 5.77
Samsung 14" Color	$139.77
Sentrek 12" Amber	$ 59.79

BRODERBUND

Karateka	$ 17.00
Printship	$ 25.90
LIB 1/2/3	$ 14.90
Companion	$ 24.90
Bank St. Writer	$ 32.90

SYNAPSE

Syncalc	$ 32.77
Synfile +	$ 32.77
Templates	$ 14.77
Synchron	$ 32.77
Syntrend	$ 32.77

ST SOFTWARE

Beatles Musicdisc	$ 11.97
Classics Musidisc	$ 11.97
Midiplay	$ 29.97
Regent Base	$ 59.97
Regent Pak	$ 29.97
Regent Word	$ 29.97
Regent Word II Gem Version	$ 59.97
Spell Checker	$ 29.97
E-Z Calc	$ 41.97
Help Calc	$ 14.97
Help-mate	$ 17.97
Helpmate	$ 23.97
Inventory Master	$ 59.97
Word Writer ST	$ 47.97
Mega Font ST	$ 23.77
Rubber Stamp ST	$ 28.77
ST Music Box	$ 29.77
Copy II ST	$ 23.77
VIP Lite	$ 49.77
Space Quest	$ 29.97
Ultima II	$ 35.97
Winnie the Pooh	$ 14.97

ST HARDWARE

520 ST Computer	$399.90
SF 314 Disk Drive	$207.77
SF 354 Disk Drive	$149.77
SCI 224 Monitor	$297.77
SCI 24 Monitor	$167.77
SM 804 Printer	$199.77

ST HARD DRIVES

Atari 20MB	$ 649.90
Supra 10MB	$ 629.90
Supra 20MB	$ 639.90
SUPRA 30MB	$ 829.90
SUPRA 60MB	$1789.90

JOYSTICKS / ACCESSORIES

WICO The Boss	$ 10.77
WICO Ball	$ 14.77
WKOS Way	$ 18.77
Kraft	$ 8.77
Recoton Big Shot	$ 11.77
5¼" Drive Cleaner	$ 8.77
5½" Drive Cleaner	$ 9.77
CRT Cleaner	$ 14.77
800 XL Cover	$ 7.77
520 ST Cover	$ 9.77
Drive Cover ST	$ 7.77
1050 Cover	$ 7.77
1025 Cover	$ 7.77
1017 Cover	$ 7.77
130 XE Cover	$ 7.77
1224 Cover	$ 11.77

ST SOFTWARE

HABA Special	$ 87.43
HABA Writer	$ 44.97
HABADEX Phonebook	$ 35.97
HABAMerge	$ 23.97
HABASpell	$ 23.97
HABAView	$ 44.97
Hippo-C	$ 44.97
Home Accountant	$ 44.97
Mailroom	$ 44.97
Professional Business Letters	$ 29.97
Golden Path	$ 23.77
Guild of Thieves	$ 23.77
Pawn	$ 23.77
Starglider	$ 23.77
Hippo Computer Almanac	$ 20.97
Hippo Disk Utilities	$ 29.97
Hippo Eprom Burner	$ 97.77
Hippo Jokes and Quotes	$ 20.97
Hippo Ramdisk	$ 20.97
HippoArt I	$ 23.97
HippoBackgammon	$ 23.97
HippoConcept	$ 53.97
HippoLedger	$ 53.97
HippoPixel	$ 23.97
HippoSimple	$ 29.97
HippoSpell	$ 23.97
HippoWord	$ 53.97
HippoWord Fonts	$ 23.97
Cambridge Lisp	$119.97
ISO PASCAL	$ 59.97
Lattice C Compiler	$ 89.97
Macro Assembler	$ 47.97
Menu	$ 17.97
General Ledger	$ 59.97
Kempelen	$ 23.97
King's Quest II	$ 29.97
King's Quest	$ 29.97
King's Quest III	$ 29.97
Payroll	$ 59.97
Series Bundle (CD,AR,GL)	$119.97

ORDERS ONLY
1-800-233-6345

CUSTOMER SERVICE OR IN FLORIDA (305) 538-1364
FREE FREIGHT ON ALL ORDERS OVER $100.00

Orders under $100.00 add $4.00 shipping and handling. C.O.D. orders add $4.00. prices reflect a 3% cash discount. Add 3% for VISA/MC
Personal checks allow 2 wks for processing Prices Subject to Change Without Notice
ORDERS RECEIVED BEFORE 12:00 PM WILL BE SHIPPED SAME DAY. Florida residents add 5% sales tax

CIRCLE 060 ON READER SERVICE CARD

BY PATRICK BASS, ANTIC ST PROGRAM EDITOR

Electric Charlie

Pop-up window explains error messages

Electric Charlie! is more than just a demonstration of how to program a memory-resident pop-up window for Atari 8-bit computers. It automatically displays useful explanations of any error number message you might encounter while writing your own programs. This BASIC program works on all 8-bit Atari computers of any memory size, with disk drive.

Atari 8-bit BASIC is a good, solid language that packs surprising power into 8K and has served programmers admirably for almost seven years now.

However, one of the things I miss when using Atari 8-bit BASIC is detailed error messages. To conserve memory space, whenever an error happens inside Atari BASIC, the language spits out that familiar "ERROR xx AT LINE xxx" message—and "ERROR xx" is merely the *number* of the error that occurred. You then must look up—probably in a reference book—the real meaning of the error number.

Here at **Antic** we have it easy. Technical Editor Charles Jackson knows the error codes by heart. Four or five times a day some plaintive voice comes wafting across the office, asking, "Charlie, what's a 144?" or, "Charlie, what's a 128?" Charlie rattles off the error and everybody's happy.

HEARTBREAK HOTEL

Recently, though, Charlie got sick and had to stay home for a few days. Panic set in right after the first "Charlie!" call went out. Work ground to a halt as we went looking for lists of error messages.

In desperation, we even phoned our favorite computer company. A secretary listened to our problem and asked us to hold. Then somebody came on the line and said that whenever anyone there got an error message, they called Charlie Jackson at **Antic**. But he didn't seem to be in that day.

ELECTRIC CHARLIE

Thus was born the need for Electric Charlie!, a utility for Atari 8-bit BASIC programmers which pops up a window on the screen showing the last known error number, the line where the error occurred—and a short description of the type of error that occurred.

When Electric Charlie! is installed, you just program along in Atari BASIC. When BASIC stops at an error, simultaneously press the three keys—[SHIFT] [CONTROL] [ESCAPE]. Electric Charlie! pops up on the screen to tell you which error actually happened. The next key you press will close the Electric Charlie! window.

Electric Charlie! lives on disk as an AUTORUN.SYS file. When you boot your Atari 8-bit computer with this disk, Electric Charlie! will automatically install itself in low memory, above DOS and below the start of BASIC's memory. It will then sit quietly and look at each keystroke. When Electric Charlie! sees that you have simultaneously pressed [SHIFT] [CONTROL] [ESCAPE], its window pops up and displays the last known error code. Any keystroke that follows will close Electric Charlie! and restore the full screen.

TYPING IT IN

Type in BASIC Listing 1, CHARLIE.BAS, check it with TYPO II and SAVE a copy to disk before you RUN it. You do *not* need to type in assembly language Listings 2 and 3 in order to RUN the program.

When you RUN Listing 1, it will create a disk file called CHARLIE.EXE. Antic Disk owners: You will find CHARLIE.EXE on this month's disk.

Transfer CHARLIE.EXE to another disk and rename it AUTORUN.SYS. Make sure the new disk has been formatted using DOS 2.0 or DOS 2.5 and contains the DOS.SYS file. Now just turn your computer off, then back on. Electric Charlie! will load and run automatically.

The program first presents a short message across the top of your video screen, reminding you that Electric Charlie! has been installed. At this point, just start programming in Atari BASIC. Electric Charlie! is ready to help you at a moment's notice.

ASSEMBLY TAKE-APART

Listing 2, CHARLIE.M65, and Listing 3, CHAA.M65, are Electric Charlie! written in 6502 assembly language as implemented in MAC/65 from Optimized Systems Software. The listings are teaching examples for assembly language programmers. Listing 2 is a master file, used as a base to assemble additional code fragments. In this case, we have only one such fragment, Listing 3.

The opening lines of Listing 2 contain definitions for 5 macros. These are sections of code which will be called later in the listing. With macros, entire blocks of code may be defined once, then used throughout the code by simply stating their names.

The program begins at line 1090, and starts by jumping to a later section of code which will install Electric Charlie! into BASIC.

Below that, the ACCESSORY subroutine checks each one of your keystrokes to see if it is [SHIFT] [CONTROL] [ESCAPE]. If it is, we open the window. If it isn't, the window is closed and the character is passed along to BASIC. If the window is open, any subsequent keystroke will close it.

The calculated addresses for the window and the text *inside* the window are found between lines 1840 and 1960. Below that, the SETUP subroutine installs Electric Charlie! into BASIC.

Lines 2330 through 2520 contain the character map for the window. Feel free to change the size of the window, as WIND.W (window_width) and WIND.H (window_height) are calculated automatically when you assemble the program.

OPEN WINDOW

Now we get to the subroutine which opens the window. But before opening the window, we determine what information it will cover up—and we save that information to another part of memory. It never gets any harder than that. The following routine, CLOSE.WINDOW, reverses this procedure by replacing the saved screen memory. This erases the window.

Next, starting at line 3200, the ADJUST subroutine accepts standard ASCII characters and converts them into Atari's internal POKE codes. We don't PRINT in Electric Charlie!—we POKE characters to the screen.

WORKING WINDOWS

The subroutine WORK.WINDOW calculates and places the information inside the window. First it prints out the error number, then the line the error occurred on, and finally the explanation of the error.

The last three sections of code in Electric Charlie! are where we keep tables of information needed by the program. First, we find the table called ERROR.TABLE, where we keep a list of every known error. Next comes ERROR.JUMP, containing the addresses of the corresponding error messages. Finally, we find the table of descriptive error messages themselves, again stored in the same order as the two previous tables.

Electric Charlie! sure does help. It's not perfect, because BASIC can generate errors faster than Charlie! can keep up. But all in all, it's very useful for those of us who don't know the Atari error messages by heart—and who don't have the real Charles Jackson working at a desk within shouting distance.

Listing on page 89

SLIDE SHOW
continued from page 39

bank switching:

POKE PORTB,(193+16*MODE+4*BANK).

Here, MODE is set to 0, telling both ANTIC and the CPU to use extended memory. BANK0 through BANK3 contain the proper bank values. These variables are defined in lines 278-280. Our initial display list is set up in line 250 and 300-350.

In extended memory mode, memory at locations 16384 ($4000) to 31767 ($7FFF) are switched out and one of the four 16K extra banks is switched in to take its place. Now, when your program PEEKs and POKEs in this range, it will be dealing with the new bank instead of the original.

Next, the program loads a pair of microscreens into each of the four memory banks. Lines 290 and 360-460 switch in the appropriate bank, then call the subroutine at line 740 to load two pictures into that bank.

Bytes 4 and 5 of the display list form an address which points to the beginning of screen memory. Notice that byte 4, the low address byte, is POKEd with a 16 at line 300. This offset is needed because our 7680 byte screen must cross a 4K boundary in RAM. Without the offset, the lower portion of our picture would not display correctly. The file loader routine requires the same offset at line 770.

The variable HI is used as the high address byte of the screens. It is POKEd into the display list as appropriate. During loading, HI is also used to determine whether the picture is to be stored into the upper or lower 8K of the bank.

Lines 470—620 do the actual bank switching and page flipping, using the subroutine at line 630 to set the color registers and adjust the display list.

To learn more about the techniques discussed here, we suggest the following books:

Your Atari Computer by Lon Poole. $19.95, Osborne/McGraw-Hill.

Atari Graphics and Arcade Game Design by Jeffrey Stanton with Dan Pinal. $12.95, The Catalog, MG0103.

Listing on page 93

BY J. D. CASTEN

Rebound Construction Kit

Prizes for best screens

Here is the Rebound Creation Kit we promised you last month—complete with Best Screens Contest, judged by J.D. Casten himself. The January issue featured Casten's sixth published **Antic** *game,* Rebound, *in which bouncing Flip Ogart rescued his fellow Ogart pudding-creatures from the lair of the evil RotogartEatos. Now this issue's sequel lets you create your own* Rebound *screens to challenge poor Flip even more.*—ANTIC ED

With this follow-up to January's Game of the Month, you can create your own Rebound *screens for Flip Ogart to dodge the deadly RotogartEatos. The article also includes a Best Screens Contest. Like J.D. Casten's original game, this BASIC program works on 8-bit Atari computers with at least 32K memory, disk or cassette.*

REBOUND CONTEST

With Rebound Creation Kit, you can construct your own fiendish screens for my *Rebound* game (**Antic**, January 1987). The magazine is sponsoring a contest for the best screens made with this program—which I will be judging.

Mail your screen entries on disk (DOS 2 compatible, please) to: Rebound Contest, **Antic** Magazine, 524 Second Street, San Francisco, CA 94107. All entries must arrive at **Antic** no later than *March 15, 1987.*

Winning screens will appear as an Antic Disk Bonus with the August, 1987 issue. Each winner will receive the August monthly disk issue plus the Casten Game Disk from The Catalog. All screen entries become the property of Antic Publishing. Disks cannot be returned.

GETTING STARTED

Type in Listing 1, REBOKIT.BAS, check it with TYPO II and SAVE a copy before you RUN it. The blinking cursor in the upper left-hand corner is your "drawing" cursor. At the bottom of the screen is a display of various shapes from *Rebound*, plus a blinking "selection" cursor.

To create screens, use the joystick to draw, using the shape selected with the selection cursor. The program supports all eight joystick directions with off-screen wrap-around. Pressing the joystick trigger with the drawing cursor over an empty space puts the selected shape on the screen. Pressing the trigger over an occupied space blanks it.

[OPTION] and [SELECT] move the selection cursor.

The [START] key toggles between the two sets of shapes available for selection.

Use the keyboard to add text messages to the screen. Use inverse and lowercase letters for more colors.

Type [CONTROL] [S] to save a screen to disk. You will be prompted to type in a file name and a screen number. Note: Before using the SAVE option, move the drawing cursor to the position on the screen where you want Flip

to start out.

Type [CONTROL] [L] to load a previously saved screen.

Type [SHIFT] [1]-to-[5] to adjust the colors of a screen. Each screen can use different colors. Push the joystick up and down to adjust the luminance, left and right to adjust the hue, and press the trigger when done.

Type [CONTROL] [Q] to exit the Rebound Creation Kit.

Press [SHIFT] [CLEAR] to clear the screen.

The Rebound Creation Kit uses all the objects described in the Rebound game instructions plus these new ones:

New walls—To change the look of the game, you can use different wall shapes, solid blocks, or outline blocks.

Fake walls—These look like solid walls in the game (in the Rebound Creation Kit they have an identification mark), but Flip can bounce through them. Some will kill Flip, some will hide him and some will let him bounce over them. You can intermix these with solid blocks to create mazes.

Special—Certain shapes may be used by pressing special keys on the keyboard. Note that invisible barriers are shown in the Rebound Creation Kit as special shapes.

After you complete a screen, exit the program via [CONTROL] [Q] and LOAD the *Rebound* game program. Then ENTER the screen file created (using the name you typed in). RUN the program to make sure your screen is in place. (You can adjust the FIRSTSCREEN variable in line 4 to your screen number.) Then, SAVE your new *Rebound* game under a new file name.

SCREEN DESIGN HINTS

Warning: there are two rules to follow when designing a *Rebound* screen:

1. There must be at least one Ogart to save on a screen, and there must be a way for Flip to save each Ogart on a screen.

2. You can't put just one transporter on a screen. And if more than two are used, they may not work properly—Flip could end up in the middle of a wall.

Make sure your screens are possible to complete, but not too easy. Try to use the objects in fresh new combinations that challenge the player to use Flip in new ways. Try something bizarre.

You might use the text to help give a theme to a screen, or to possibly give a clue, a warning, or a pat on the back. Make efficient use of the screen, not wasting much space. Try to make sure that there are no dead ends (like a one way flow of RotogartEatos that can't be switched).

Since 1983, J.D. Casten has published six games in **Antic**, *including* Box-In *(December 1985),* Risky Rescue *(April 1984),* Escape from Epsilon *(June 1984),* Biffdrop *(December 1985) and* Adventure X-15 *(November 1984). The Catalog carries these on the Casten Game Disk ($12.95, ADS0001). Casten is currently a computer science freshman at the University of Oregon.*

Listing on page 95

It's Here!

NEW

BASIC COMPILER

only $69.95

For Atari 520/1040 ST

- So easy to use!
- A menu driven GEM application!
- Fully ST BASIC compatible!
- Produces small efficient code!
- Generates a stand alone program!
- Supports GEMSYS and VDISYS calls!
- Has hooks to BIOS!
- No line numbers needed
- Double-precision floating point numbers fully implemented

For the BEST professional BASIC Compiler on the market today send personal check (wait 10 days to ship), money order, cashiers check, VISA and M/C, C.O.D. (add $2.00). (California residents add applicable sales tax.)

— Dealers Welcome —

LDW

Logical Design Works, Inc.
780 Montague Expwy., Suite 205
San Jose, California 95131
(408) 435-1445
Telex: 294526 LDW UR

CIRCLE 037 ON READER SERVICE CARD

LESSONS IN LEARNING

Educational Software for the Atari ST™

Featuring

TIC-TOCK ▪ LEARNING TO TELL TIME LL101
PIGGY BANK ▪ WORKING WITH COINS LL011
MONEY TREE ▪ WORKING WITH PAPER MONEY LL012

Computerized Flash Card Games

✓ MATH FLASH ADDITION - LL040
✓ MATH FLASH SUBTRACTION - LL041
✓ MATH FLASH DIVISION - LL042
✓ MATH FLASH MULTIPLICATION - LL043

$19.95 EACH OR ANY FOUR (4) FOR $49.95

Send Check or Money Order with Item Numbers to:

MIRAGE SYSTEMS, INC.
P.O. Drawer 1489
Palatka, FL 32078-1489
(904) 471-5722

Florida Residents add 5% Sales Tax
Dealer Inquires Welcome • User Group Discounts Available

CIRCLE 046 ON READER SERVICE CARD

DISCOUNT SOFTWARE

ABBY'S SUPER BUYS

PROGRAMMER'S KIT
$9.95

INCLUDES:
BASIC Cartridge,
Inside Atari
BASIC Book,
BASIC Language
Reference Manual

ARCADE CHAMP KIT
$14.95

INCLUDES:
Pac Man,
Qix,
Two Joysticks
& Cartridge
Holder

States & Capitals (C) . . . $ 1.99
Invitation to Programming #1 (C) . $ 2.99
Conversational French (C) . . . . . $ 9.95
Pac Man (R) . . . . . $ 5.95
Track & Field (R) $19.95
Millipede (R) . . . . . $ 7.95
Qix (R) . . . . . $ 7.95
Ms. Pac Man (R) $12.00
Sky Writer (R) $12.00
Robotron: 2084 (R) $12.00
Jungle Hunt (R) $12.00
Pooyan (D & C) . . . . . $ 5.95
Moon Shuttle . . . . . $ 5.95
Star Raiders (R) . . . . . $ 7.00
Missile Command (R) . . . . . $ 7.00
Tinka's Mazes (D) . . . . . $ 5.95
Tink's Adventure (D) . . . . . $ 5.95
Tonk In The Land of Buddy Bots (D) . . . . . $ 5.95
BASIC (R) . . . . . $ 2.99
P.Q. Party Quiz $14.95

CALL ON THESE AND OTHER PRODUCTS. WE CARRY A COMPLETE LINE OF SOFTWARE AND HARDWARE INCLUDING PRINTERS

ATARI ST HARDWARE
1040 ST CPU, Mouse & BASIC . . . . . CALL
520 ST CPU w/RF Modulator, Mouse & BASIC . . . . . CALL
SF 354 3½" SS/DD Disk Drive . . . . . CALL
SF 314 3½" DS/DD Disk Drive . . . . . CALL
SM 124 12" Monochrome Monitor . . . . . CALL
SC 1224 12" RGB Color Monitor . . . . . CALL
SH 204 20MB Hard Drive . . . CALL

ST TOP HITS
Ultima III $49
Leather Goddesses of Phobos $29
Word Writer $59
Baker St. Detective $15
Eight Ball $23
Pinball Factory $29
Data Manager $59
Chess Master $35
Degas Elite $59
Winter Games $29
World Games $29
Thunder $29
Time Bandit $29
Temple of Apshai Trilogy $27
Starglider $34
Print Master $29
P.C. Board Designer $159
Paintworks $49
Pawn $34
Music Studio $39
Leaderboard Golf $29
Tournament Disk $14
Flight Simulator $39
Copy II $32

ATARI XL/XE HARDWARE
130 XE Computer . . . . . CALL
800 XL Computer . . . . . CALL
1050 Disk Drive . . . . . CALL
1025 Printer . . . . . CALL
1020 Printer $24.00
XM 301 Modem . . . . . CALL

XL/XE TOP HITS
Battle of Antietam $30.00
USAAF $35.00
Touchdown Football $11.95
Chessmaster 2000 . . . . . $29.00
F-15 Strike Eagle $25.00
Music Studio $27.00
Print Shop $35.00
Graphic Library I, II & III . . . . . ea. $18.00
Print Shop Companion $28.00
Temple of Apshai Trilogy $26.00
Flight Simulator II $39.00
Scenery Disk . . . . . ea. $16.00
Karateka $24.00
Nam $29.00
Koronis Rift $26.00
Moviemaker $39.00
Kampfgruppe $35.00
Paperclip $44.00
B/Graph $29.00
Computer Quarterback $24.00
Leaderboard Golf $31.00
Tournament Disk $15.00
Wargame Construction Set $19.50
One on One $11.95

CASIO

– MUSICAL CREATIVITY –
PT-1 . . . . . $ 37
CK-10 . . . . . $ 45
SK-1 . . . . . $ 78
PT-82 . . . . . $ 57
CK-500 . . . . . $269
MT-52 . . . . . $ 84
CT-102 . . . . . $129
MT-100 . . . . . $144
MT-500 . . . . . $229
MT-85 . . . . . $219
CZ 230 S $279
CZ 101 . . . . . $279
CZ 1000 . . . . . $469

RIBBONS
Atari 1025 (Black) $2.50
Atari 1025 (Color) $3.50
Atari 1027 Ink Rollers $5.00
Panasonic 1091 . . . . . $8.50
Okimate 10 (Color) $6.00
Star Gemini Black $2.50
Star Gemini Color $3.50
Atari 1020 Pens (Black) $2.50
Atari 1020 Pens (Color) $3.00

DUST COVERS
520 ST Computer $7.00
SF 354 Disk Drive $7.00
SF 314 Disk Drive $7.00
Mouse House $5.50
Mouse Mat $7.50
130 XE Computer $7.00
1050 Disk Drive $7.00
1025 Printer $7.00
1027 Printer $7.00
800 XL Computer $7.00

AMSTRAD
WORD PROCESSOR WITH NLQ PRINTER

CALL

CIRCLE 003 ON READER SERVICE CARD

ALL TITLES ON DISK UNLESS MARKED (R) FOR ROM CARTRIDGE & (C) FOR CASSETTE TAPE

Order Line
1-800-282-0333
ORDERS ONLY! Sales Personnel Do Not Have Information on Previous Orders or Product Specs.

WE CHECK FOR STOLEN VISA & MASTERCARD
M-F 10 a.m.-8 p.m.; Sat. 10-3 ET
37 S. Broad Street, Fairborn, OH 45324

Customer Service & Ohio Residents
1-513-879-9699

AD #AT-027

VISA

SOFTWARE ONLY — Prepaid orders over $50 receive free shipping via UPS in continental U.S. Please add $2 orders under $50. HARDWARE and all orders requiring shipment via U.S. Post Office are subject to additional freight charges. Add $5 for COD orders. VISA/MasterCard orders add $2 service charge. Ohio residents add 5.5% sales tax. Personal checks require a three-week waiting period. No waiting when paid by credit card, certified check or money order. All items subject to availability and price change. PLEASE CITE AD NUMBER WHEN ORDERING. ALL RETURNS MUST BE ACCOMPANIED BY AN AUTHORIZATION NUMBER.

MasterCard

MILLIONAIRE

Blue Chip Software
6740 Eton Avenue
Canoga Park, CA 91303
(800) 258-3244—National
(818) 346-0730—California
Requires BASIC
$19.95, 48K disk

CIRCLE **251** ON READER SERVICE CARD

Reviewed by John McCormick

I bought 300 shares of IBM and 10 call options on Exxon. My charts showed that General Motors looked good in view of the earnings projections in news reports, so I bought 200 shares of GM for my portfolio.

Two weeks later I had lost $50,000 and needed to sell all my shares of Dow Chemical just to pay the bills.

Some say money is the root of all evil—others claim it's the *lack* of money. I don't necessarily support either opinion, but I do know that the winning, losing, earning and spending of money fascinates me—much more than shooting down aliens or getting lost in mazes.

Millionaire is as much a stock market simulation as it is a game, combining real-life situations with exciting action. Millionaire and other Blue Chip Software games are so realistic that stock brokerage firms use them to train new brokers. Millionaire can either create a new game for you or restart one that you saved in progress. It also keeps track of the top scores for seven players

I have been an active investor for years, so my interest in the game is understandable, but my wife, who has no interest in finance, still found Millionaire a most fascinating game.

You start with $10,000. Your goal is to increase this amount to $1 million through shrewd investments in 15 stocks covering computers, oil and gas, retail, auto and heavy industries (steel, chemical, machinery). You also have 14 weeks of market information for all 15 stocks, along with graphs for each industry group, and you have 77 weeks to meet your $1,000,000 goal.

As a Novice investor you can only buy stocks for cash (much like the real world), but as your profits grow and your net worth increases, you move up through the ranks of Investor, Speculator, Professional and Broker.

As your rank increases, so does your range of investment tools. Soon you can use margin purchases, or put and call options. Eventually you can even borrow up to 80 percent of the value of your assets and leverage your investments. This increases the rate at which you gain (or, more likely, lose) money.

Each week you automatically see graphs of all your investments, price and price movement information on all stocks, and news reports. You can also view graphs of every stock, or follow the activities of entire industry groups.

Purchases are easily made, with the software handling all needed calculations, telling you how many shares you can buy with available cash, and even deducting commissions and interest.

This might sound complicated to those unfamiliar with the stock market, or it might sound too simple to an investor. Believe me, neither is the case. I had great trouble tearing myself away from Millionaire once I started, and I rarely quit playing before finishing a full 77 turns. My wife said she learned more about how I invest money from playing one whole session of Millionaire than from reading the Wall Street Journal on and off for 15 years.

My only complaint is that Millionare is slow at times—though my wife found that the program was always ready for her next move long before she'd made her decisions. Millionaire is completely menu-driven, often returning you to the main menu after completing an action when you might prefer finishing another transaction before leaving a particular area. This is really minor, though, because you can always leave the main menu again at any time.

The only tip I can offer in playing this simulation is not to pay too much attention to the news reports. Not that they aren't honest—it's just that, as in the real world, you can't always tell what will happen to a stock from the news about the company.

The only real improvement I can think of is if Blue Chip would send me a check when I win big at Millionaire. But then they'd probably want me to pay them when I lose. Oh, well, I guess using play money is probably the safest. So far all I have really lost is a fair amount of sleep.

DOTS-PERFECT UPGRADE KIT

Dresselhaus Computer Products
837 East Alosta Avenue
Glendora, CA 91740
(818) 914-5831
$79.95

CIRCLE **257** ON READER SERVICE CARD

Reviewed by Len Dorfman

The **Dots-Perfect Upgrade Kit** is designed for Epson's FX, JX, RX, and MX printer series. For this review, I'll divide the Dots-Perfect functions into two catagories. The first category lets you select standard Epson printer functions such as condensed print, elite and double-wide from the printer's original control panel. This is useful, but it can be simulated easily with a word processor or printer utility program that transmits the appropriate control codes to the printer.

However, one feature is *so* important that it deserves its own category—the Near Letter Quality (NLQ) mode. NLQ can be initiated either by software commands or by using the printer's control panel—while the Epson continues responding to its normal commands.

Although I'm familiar with software design, programming techniques and software usage, I could never disassemble computer hardware without undue anxiety. But

continued on next page

since I received my Dots-Perfect Upgrade Kit on a lazy afternoon after my local Atari repair center had closed, I bravely decided to install it myself.

With some trepidation I opened the upgrade kit. The kit for my Epson JX-80 printer included a *very* clear installation instruction manual, three IC chips and a sticker showing the commands for the Dots-Perfect Upgrade. I removed the JX-80's cover and located the auxiliary board, using one of the manual's many photos as a guide. The chips to be changed were located below the auxiliary board and easily identified.

The manual said that rare versions of Epson printers have a jumper wire I would need to cut. I was so delighted by the ease of installation that I was actually disappointed that my JX-80 didn't have a jumper wire. A shorting block form needed to be moved, a few DIP switches flipped, and the printer was re-assembled in a few moments. I held my breath, plugged in the JX-80 and initiated the printer's self test. It worked the first time.

I returned the JX-80 to its proper place beside my Atari and printed a text file from the desktop using the condensed printing mode. Normally, I would have run a short utility program to initiate the condensed mode, but I decided to try the command sequence of the Dots-Perfect upgrade. I turned the printer on. As per instructions, I pressed and released the JX-80's On Line and FF buttons at the same time, then tapped FF, LF and On Line once each. My file was then printed in the condensed mode.

Truthfully, I didn't get the Dots-Perfect upgrade for the convenience of controlling my printer's function settings from the control panel. I got it for its NLQ printing mode, which I could barely wait to test. Following the easy instructions, I turned on the NLQ mode and printed the same text file. It was truly amazing. The print looked like the NLQ print quality on a more expensive Toshiba printer.

I really appreciated the thorough manual with its photos of Epson internals, logically-presented instructions and many examples. Installation was easy as there was *no* soldering required. As far as I can see, the chips work as advertised and the Dots-Perfect Upgrade is fun to use. On the down side, it appears to print as

```
Double Strike Emphasized
NLQ Double Strike Emphasized
Near Letter Quality Mode
```

slowly in regular mode as the normal Epson does in its slow modes. Printing long documents would be very time consuming.

If you've ever bemoaned the fact that your Epson didn't have one of those fancy NLQ printing modes, you needn't fantasize about buying another printer. If you judge $80 and 45 minutes as fair payment for upgrading your Epson printer to have an NLQ function, then Dots-Perfect will do the trick. I'm glad I've got my upgrade. It's recommended.

SUPER REEVEKEY

Reeve Software
29W150 Old Farm Lane
Warrenville, IL 60555
(312) 393-2317
$19.95, XL/XE

CIRCLE 259 ON READER SERVICE CARD

Reviewed by David Plotkin

Super ReeveKey software allows you to use the old Atari CX85 10-key (actually 17-key) number pad with DOS, BASIC, SynCalc, HomePak and a few other programs.

To use the ReeveKey, boot up your Atari with the the ReeveKey disk in the drive. It takes a while to load, because the copy protection scheme causes your disk drive to retrack no fewer than *six* times. After the program finally loads, you can choose which joystick port to plug the keypad into and which "filter" to use.

The filter attempts to protect ReeveKey's customized operating system from being corrupted by the main program being run. It can have three values. From BASIC or DOS, value 0 seems to work. Some programs need a value of one, but the brief documentation doesn't say which ones. A value of two is only for SynCalc—don't use it with anything else. But the ReeveKey does work well with SynCalc, and this by itself may make it worth having.

ReeveKey also accepts custom keypad layouts from disk. This is a nice feature, since each key of the pad can represent as many as 10 characters. For example, one of your templates could be 17 of your most frequently used BASIC keywords, such as GOTO and PRINT, which are then put on the screen whenever you press the appropriate key.

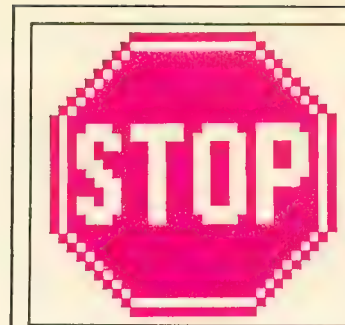
After making your selections, put your main software into drive 1 and press [START]. This reboots the machine. The instructions say to hold down [OPTION] to get BASIC when rebooting, which is the opposite of normal. But the screen prompt says that holding down the [OPTION] key disables BASIC. Believe the instructions, the screen is wrong.

On the other hand, the instructions also say that pressing [START] and [SELECT] at the same time will reboot the machine, leaving the keypad driver intact so you can change programs. This rarely worked, especially from BASIC and DOS. Instead I got the cassette load tone.

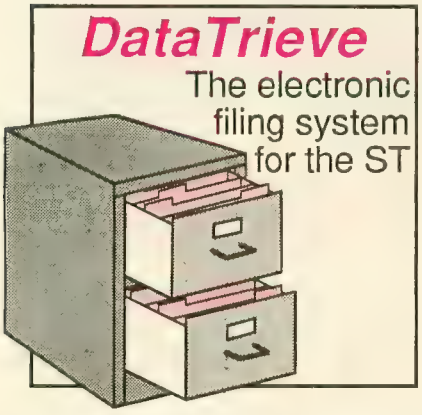
The ReeveKey only works with Atari XL/XE models. Owners of the 400 and 800 are out of luck. A patch is available to allow SynFile+ to work, but you must send your original SynFile+ disk to Reeve Software along with a $2 handling charge. Save your work frequently, since unexpected crashes do occur. And stay away from the [RESET] button. Pressing it will reboot, and you'll lose the keypad driver.

The customizer screen lets you en-

continued on page 50



We have the software you've been looking for!

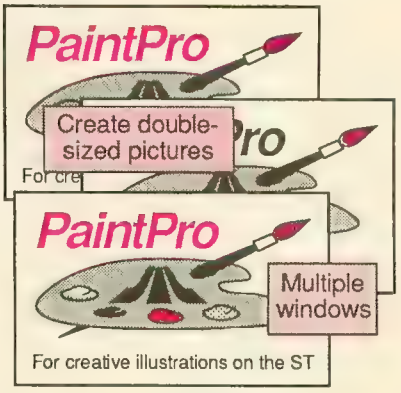


ST DataTrieve

Data management was never this easy. Online help screens; lightning-fast operation; tailorable display; user-definable edit masks; up to 64,000 records. Supports multiple files. Includes RAM-disk programs. Complete search, sort and file subsetting. Interfaces to TextPro. Easy yet powerful printer control. Includes five common database setups. **$49.95**

ST TextPro

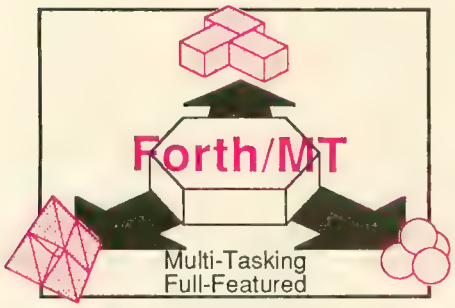
Wordprocessor with professional features and easy-to-use! Full-screen editing with mouse or keyboard shortcuts. High speed input, scrolling and editing; sideways printing; multi-column output; flexible printer installation; automatic index and table of contents; up to 180 chars/line; 30 definable function keys; metafile output; much more. **$49.95**



ST PaintPro

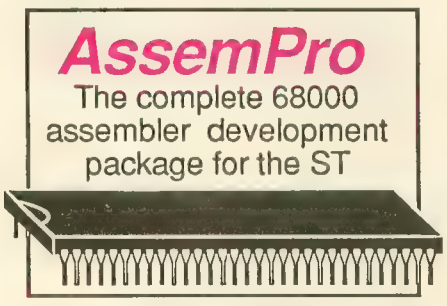
Friendly, but powerful design and painting program. A *must* for everyone's artistic and graphics needs. Up to three windows. Cut & paste between windows. 36 user-defined fill patterns; definable line patterns; works in hi-med- & lo-res; accepts GDOS fonts. Double-sized picture format. **$49.95**

PaintPro Library #1 5 fonts, 300+ electronic, architectual, borders & clip art designs. **$19.95**



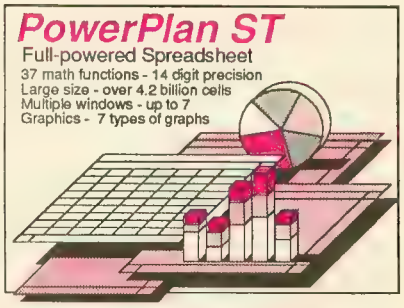
ST Forth/MT

Powerful, multi-tasking Forth for the ST. A complete, 32-bit implementation based on Forth-83 standard. Development aids: full screen editor, monitor, macro assembler. 1500+ word library. TOS/LINEA commands. Floating point and complex arithmetic. **$49.95**



ST AssemPro

Professional developer's package includes editor, two-pass interactive assembler with error locator, online help including instruction address mode and GEM parameter information, monitor-debugger, disassembler and 68020 simulator, more. **$59.95**



PowerPlan ST

Powerful analysis package. Large spreadsheet (65536 X 65536 cells), built-in calculator, notepad, and integrated graphics. 37 math functions, 14 digit-precision. Seven windows to show one of seven types of charts or another section of your spreadsheet. **$79.95**

ST and 1040ST are trademarks of Atari Corp.

Other software and books also available. Call or write for your **free catalog** or the name of your nearest dealer. Or order directly using your VISA, MC or Amex card. Add $4.00 per order for shipping and handling. Foreign orders add $10.00 per item. 30-day money back guarantee on software. Dealers inquires welcome–over 1500 dealers nationwide.

Abacus

P.O. Box 7219 Dept. A2 Grand Rapids, MI 49510
Phone 616/241-5510 • Telex 709-101 • Fax 616/241-5021

CIRCLE 002 ON READER SERVICE CARD

ter up to 10 characters next to each keypad symbol. If you type a character wrong, there is no way to erase it. Since every keystroke prints a character to the screen, you can only correct an error by adding an appropriate number of [BACKSPACE] characters, followed by the corrected character.

If you work primarily with BASIC or DOS and are happy with Atari's default key definitions, then Atari's own keypad driver works just fine. On the other hand, if you want to redefine the keypad keys, or use the keypad with SynCalc, SynFile+, HomePak or others, then the ReeveKey is just the ticket. Also, recent CX85 owners may have bought their keypads at closeout sales without *any* software included. Just be warned that you will need to do some experimenting with it before you can trust it for important work.

TOP GUNNER

MicroProse Software
120 Lakefront Drive
Hunt Valley, MD 21030
(301) 667-1151
$24.95, 48K disk

CIRCLE 257 ON READER SERVICE CARD

Reviewed by Gregg Pearlman

Top Gunner Collection is an anthology of three best-selling MicroProse aerial combat programs—Hellcat Ace, MIG Alley Ace and Air Rescue. It's nice software with impressive graphics and sound effects. All three games are controlled with the joystick. In fact, the keyboard is virtually left untouched except when you occasionally press [P] to pause a game.

Hellcat Ace, set during World War II, gives you a first-person perspective of 14 scenarios that recreate air battles from 1940 to 1944. The object in most of the scenarios is, of course, to shoot down an enemy bomber. But in the Midway and Leyte Gulf segments, your main purpose is just to avoid being shot down.Some sophisticated flying maneuvers in 3-D airspace must be learned. The instructions discuss the loop, which is easy, and the split-S and Immelmann turn, both of which require flying upside down.

Similar moves and perspectives also apply to MIG Alley Ace, set during the Korean War. This has only five scenarios, but a plane can be flown by a two-player crew. The screen is split into cockpit views for each opposing plane.

Air Rescue is substantially different from the first two games. Here you're a chopper pilot trying to rescue a team of trapped archeologists in Northern Africa. The view is third-person 2-D this time, as you navigate your helicopter through a treacherous underground labyrinth, taking out nuclear furnaces and drone helicopters along the way. Three helicopters pursue you at all times—if you knock out one, another takes its place. Your chopper must not collide with *anything*, or else it will explode instantly.

All three games are interesting to watch and play. At $24.95, Top Gunner is a must for the collection of any combat flight simulation fan.

WORLD KARATE CHAMPIONSHIP

Epyx Inc.
600 Galveston Drive
Redwood City, CA 94063
(415) 366-0606
$34.95, 48K disk

CIRCLE 261 ON READER SERVICE CARD

Reviewed by Harvey Bernstein

At the June Consumer Electronics Show in Chicago, several companies announced renewed support for the Atari 8-bit computers. Epyx has made good on its promise by releasing **World Karate Championship**, one of the best sports simulations I've seen.

World Karate Championship is based on the popular arcade-type kung-fu and karate games. Like those, the game gives you a series of opponents of greater and greater ability in matches set all over the world. Using the joystick, you have a selection of 16 moves— depending on whether or not the trigger is depressed. You can throw everything from high and low kicks and punches to flips, lunge

punches and the ever-popular backspin kick. And you'll never get tired.

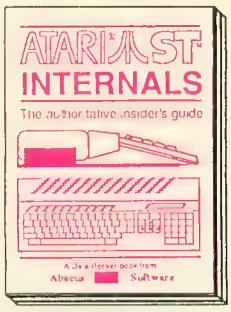
Normally it would be hard to remember the correct stick-button combinations to execute desired moves, but World Karate Championship is more than a hand and thumb exercise. The game actually encourages a Zen-like approach, as you carefully consider the appropriate move. But this doesn't mean your opponent will allow you too much time to consider your actions. You have to strike a perfect balance between offense and defense to be successful at this game.

The graphics and animation are similar to Broderbund's Karateka, with the motions of both player and opponent quite lifelike. Anybody who has seen "The Karate Kid" will understand the system used to score the game. Every time you or your opponent lands a blow during a 30-second round, the judge will award either a full point or half point. The first to score two points wins the match, and the game ends when the computer wins. In addition, after three matches you are faced with a challenge of "mental or physical discipline." This usually involves breaking bricks or dodging flying knives.

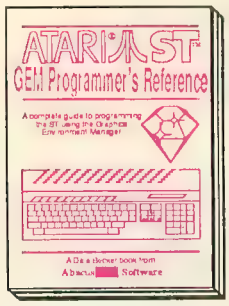
World Karate Championship is an excellent arcade game. If you think it's for you, head on down to the local software store and buy a copy. It's the least you can do.

A Wealth of Information

from the name you can count on

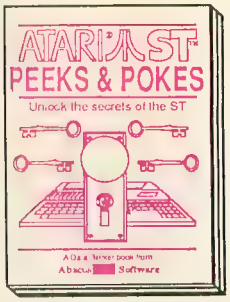


Essential inside info on the ST. Descriptions of sound & graphics chips, internal hardware, I/O ports. Commented BIOS listing. Indispensible reference for your ST library. 450pp $19.95

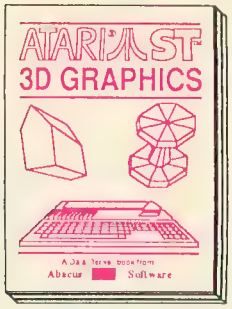


Easy-to-understand format covers the workings of GEM. Examples are in C and assembly. Covers VDI and AES functions and parameters. Serious programers should'nt be without. 410pp $19.95

Fantastic collection of programs & techniques. Programs include: superfast RAM disk; time-saving printer spooler; color print hardcopy; plotter output; accessories. 260pp $19.95



Enhance your programs with these quick-hitters. Explores different languages BASIC, C, LOGO & machine language, using the various interfaces, memory usage, disk access. 180pp $16.95



Fantastic! Rotate, zoom, and shade 3D objects. Programs written in fast machine language. Learn the mathematics behind 3D graphics. Hidden line removal, shading. 3D animation. 350pp $24.95

Machine Language
Write fast programs for your ST using 68000 machine language. Explains number systems, register usage, structures, internal system routines. 280pp $19.95

BASIC to C
Move from BASIC to C language fast. Parallel examples show techniques and constructs in both languages. Pointers, variables, arrays, data structure. 230pp $19.95

ST Beginner's Guide
For the first-time user. Get a basic understanding of the ST. Explore LOGO and BASIC. Simple explanations. Illustrations. Glossary. Index. 200pp $16.95

Optional diskettes are available for $14.95 each. Call **now** for the name of the dealer nearest you. Or order direct using your credit card. Add $4.00 per order for shipping. Foreign orders add $10.00 per item. Call or write for your **free** catalog. Dealers inquires welcome–over 1500 dealers nationwide.

Abacus

P.O. Box 7219 Dept. A2 Grand Rapids, MI 49510
Phone 616/241-5510 • Telex 709-101 • Fax 616/241-5021

CIRCLE 001 ON READER SERVICE CARD

METACOMCO

The quality source for 68000 software
Announces

CAMBRIDGE LISP

THE SYMBOLIC LANGUAGE FOR ATARI ST

An interpreter/compiler providing a complete LISP development environment for $199.95

also available

Lattice 'C'	MCC Pascal	Macro Assembler
$149.95	$99.95	$79.95
APL-Symbolic	**APL-Keyword**	**Menu+**
$245.00	$149.95	$29.95

Contact your local dealer or call:
TEL: (US) 800-AKA-META (CAL) 800-GET-META
EUR (UK) 44-272-428781
TELEX (UK) 444874 METACO G
Add 6½% tax if CA resident

Metacomco CIRCLE 066 ON READER SERVICE CARD
5353 #E Scotts Valley Dr., Scotts Valley, CA 95066

Lattice is a registered trademark of Lattice, Inc.
Atari ST is a registered trademark of Atari, Inc.

CIRCLE 042 ON READER SERVICE CARD

PIRATES OF THE BARBARY COAST

STRATEGY ACTION GAME
FIGHT SEA BATTLES
SEARCH FOR BURIED TREASURE
TRADING IN SEVEN PORTS OF CALL

IF YOU LIKED "SUNDOG" YOU WILL LOVE PIRATES OF THE BARBARY COAST

PIRATES OF THE BARBARY COAST

PIRATES OF THE BARBARY COAST is a one-person, strategy action game based on the true factors of the Barbary Coast Pirate days in the late 18th Century. It is basically a trading game, in which the player is the captain of a trading frigate who has to trade in the various Barbary Coast seaport towns in order to raise the ransom money to get his daughter back from Bloodthroat the Pirate. He has a limited time period in which to do this. The game also features the option of finding a buried treasure on one of four possible islands. Once the captain has located Bloodthroat, he can go to Bloodthroat's hideout and either pay the ransom, fight the Pirate, or both. Along the Player's travels, he will encounter hostile Pirate fleets who often attack his ship.

PROGRAM PARAMETERS	
LANGUAGE	MACHINE
NUMBER OF PLAYERS	1
AVERAGE COMPLETION	90 MIN
AGE GROUP	10 TO ADULT
CLASS	STRATEGY ACTION
SOUND	YES
ANIMATED GRAPHICS	YES
EQUIPMENT	MOUSE JOYSTICK

SYSTEMS AVAILABLE
ATARI ST
ATARI C-64/128

EXCLUSIVELY DISTRIBUTED BY TDC DISTRIBUTORS INC.

THANK YOU! FOR YOUR PURCHASE OF ANOTHER QUALITY PRODUCT FROM HAL McCRERY AND CRAIG MOREHOUSE STARSOFT DEVELOPMENT LABORATORIES

ORDER NOW

CALL COLLECT
305-423-1987

TDC DISTRIBUTORS INC
3331 BARTLETT BOULEVARD
PARK 33
ORLANDO, FLORIDA 32811

CIRCLE 056 ON READER SERVICE CARD

Atari's Bulletin Board

5 STs with hard disks, 12,000 monthly calls

BY GIGI BISSON

"I have a closet larger than this," Neil Harris says as four people squeeze into the Atari BBS.

Here, in a room so narrow you can stretch your arms and touch both walls, is what might be the largest bulletin board system (BBS) in the country, perhaps the world. Running on five Atari 520ST computers, five Racal Vadic 300/1200 baud modems, five Atari SM204 hard disk drives and Michtron BBS software, the 24-hour Atari Base BBS gets some 12,000 calls a month, nearly 350 every day.

Mary Rhomberg Lowery

The "closet" is actually a small office in the bustling Customer Service Department of Atari's headquarters in Sunnyvale, California, right in the middle of Silicon Valley. The tight space does have its drawbacks. "I'm developing a crease in my forehead from typing down here," jokes sysop (system operator) Greg Kranich as he bends down to a keyboard on a shelf one foot off the floor.

Although Neil Harris' official title at Atari is director of Marketing Communications, a job that encompasses everything from overseeing Atari's advertising campaigns to a hectic Customer Service operation, his pet project is the Atari Bulletin Board.

Harris gets help from three volunteer sysops. Greg Kranich (an 8-bit fan) and Dave Flory (past president of the BAAUG users group and an ST enthusiast) are both San Jose police officers. Fred Beckman (another ST fan) is a postal worker.

Many businesses now operate bulletin boards to deliver information to customers. For example, Michtron Software has a BBS that gets 50 calls a day. But as far as we know, Atari is the only *microcomputer* company that runs its own bulletin board.

Most questions are answered by other users in an ongoing dialogue. However, many callers find their questions already answered in the online notes before they even have to ask.

"A year ago when the rumor mill was very active, people started turning to Atari for the real facts," Harris says. The bulletin board grew out of the need to get out quick, accurate news about the new line of ST computers and the new Atari Corp.

Now the Atari BBS has become one of the company's most important customer service tools. Questions about

products, software and hardware problems can be addressed 24 hours daily, every day of the year. News reports and Atari press releases from the BBS are also uploaded to SIG*Atari on CompuServe. Unlike Atari's free bulletin board, CompuServe charges an hourly fee. But on the other hand, CompuServe can usually be accessed from local numbers without any long-distance charges.

HOW IT GREW

The BBS started in August, 1985 on two Atari 800 computers and a Corvus hard disk, running programmable BBS software called NightLight. An ST version of this program should soon be available for about $50 from Paul Swanson, Box R, Billerica, MA 01821.

When the Michtron BBS program for the ST became available, Atari added two 520STs to the system. But within one month, callers discovered which phone numbers went to the STs and which were linked to the slower computers—and they stopped calling the 8-bits. Now the 800s have been replaced by STs and an extra 520ST is devoted to answering questions from Atari dealers.

"We can deal with four times as many questions on a BBS as we can with live customer service reps at the other end of a phone line," Harris says. But the most popular service is public domain software—350 ST programs, 250 8-bit programs and 200 picture files.

A hot program can reach people incredibly fast. Harris picked up a West German game called Puzzle/Puzzle on a world-wide VAX mainframe network called UseNet. He posted the public domain game on the Atari BBS and within two days, Atari fanatics were playing it all over the U.S.

"If something's hot, people are downloading it within five minutes," sysop Beckerman says. But piracy isn't tolerated on the Atari BBS. Offenders who attempt to upload copyrighted software will find that they have about one minute of connect time a day.

The service has become so busy that Atari even considered purchasing a VAX. Using five ST computers doesn't only save money, however. "This way we are forced to push the ST harder," Harris says.

Currently, the five 520STs are running five separate but identical bulletin boards, each with its own telephone line. "Ideally, we would like to figure how to make them talk to each other and exchange messages," Harris says about a project that he's been working on with some bright Atari engineers. Harris would like to see the ST become to telecommunications what the Macintosh is to desktop publishing.

Flory volunteers at Atari one day a week, not counting the 16 to 20 hours a week he puts in from home. "My sweetheart wishes I spent the time with her," he says. Why on earth would Flory and Kranich, two cops who investigate accidents for the San Jose Police Department, spend so much time at Atari? "This is a total escape for us. When we leave the station we can come here and change our identity," says Kranich.

As long as Atari users continue to call, the dedicated group of sysops will continue to put in long hours answering questions and brainstorming on ways to expand the service to handle the calls that usually continue nonstop around the clock.

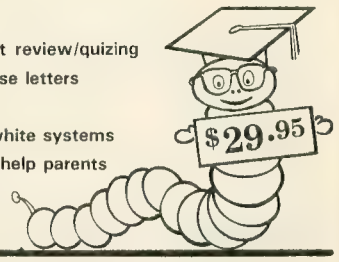
"Atari users are very community oriented and helpful, that alone is very gratifying for us," Harris says.

Atari Base BBS
1196 Borregas Avenue
Sunnyvale, CA 94086
(408) 745-5308
(408) 745-5970
(408) 745-2642
(408) 745-4758
(408) 745-5664

ATARI ST*
the
ABC's
INTRODUCING
"ST ALPHA-BYTES"
FROM MISSION SOFTS

Gem* based *educational* software for the Atari ST* *for children ages 2 to 6 years.* Packed full of giggles and hours of fun. "ST ALPHA-BYTES" uses delightful graphics to introduce children to letters and words.

Features:
- Sequential/random alphabet review/quizing
- Shows upper and lower case letters
- Audibly/visually active
- Supports color and black-white systems
- Includes 20 page guide to help parents
- Over 80 different graphics
- Unprotected



Add $3.00 for postage & handling. Calif. residents add 6.5% sales tax ($1.95)
SEND CHECK OR MONEY ORDER TO:
MISSION SOFTS
P.O. Box 3916
Seal Beach, CA 90740 Phone (213) 439-6281
Look for **"Let's Count ST"** from Mission Softs
DEALER INQUIRIES WELCOME
*ATARI ST is a trademark of Atari Corp.
*Gem is a trademark of Digital Research Inc.

CIRCLE 047 ON READER SERVICE CARD

We're the Leaders in Software Duplication

24 hour service
Tough quality control
Competitive prices

EXCLUSIVE !!
PEACE OF MIND copy protection now available for the ATARI 520 ST

WHOLESALE BULK DISKS

500 D/S Maxell 3.5" disks - $1.38 ea.

(similar savings on Sony, Nashua, and C.Itoh media)

CALL: 800-533-4188
or 215-363-2400 in PA.

ECHO
DATA SERVICES, INC.

CIRCLE 027 ON READER SERVICE CARD

You'll get a kick out of Thai Boxing for the Atari ST.

Examine Artworx' expanding list of ST software:

THAI BOXING brings oriental kick boxing to the ST with stunning 3-D graphics and fast action. **Only $19.95**

STRIP POKER is *the* classic computer program. Play against Suzi and Melissa; the more you win, the more they take off! **Only $39.95**

HOLE IN ONE GOLF Plays like the real thing and includes an easy-to-use Editor for designing your own golf course. **Only $29.95**

BRIDGE 4.0 has full graphic display of all hands, allows the user to be dealt good cards all the time and is completely mouse-driven. **Only $29.95**

COMPUBRIDGE is Artworx' bridge tutorial, utilizing 10 chapters covering all aspects of the game. **Only $29.95**

PEGGAMMON is a new and innovative approach to backgammon. Play against the computer or with a friend in the two-player mode. **Only $17.95**

MAILLIST handles medium to large sized lists. It zip code sorts, alphabetizes, selects by keyword, prints labels, and more. **Only $17.95**

BAKER STREET DETECTIVE brings you back to 1893 London with mysteries to solve just like Sherlock Holmes. **Only $17.95**

Artworx®

Artworx Software Co., Inc., 1844 Penfield Road, Penfield, N.Y. 14526 (716) 385-6120 · (800) 828-6573

CIRCLE 013 ON READER SERVICE CARD

ATTN: PASCAL USERS

MODULA-2

the successor to Pascal

FOR ATARI 520ST

- FULL interface to GEM DOS, AES and VDI
- Smart linker for greatly reduced code size
- Full Screen Editor linked to compiler locates and identifies all errors
- True native code implementation (Not UCSD p-Code or M-code)
- Sophisticated multi-pass compiler allows forward references and code optimization
- Desktop automates Edit/Compile/Link cycle
- FileSystem, RealInOut, LongInOut, InOut, Strings, Storage, Terminal
- Streams, MathLib0 and all standard modules
- Directory search paths
- Supports real numbers and transcendental functions ie. sin, cos, tan, arctan, exp, ln, log, power, sqrt
- 3d graphics and multi-tasking demos
- CODE statement for assembly code
- 370-page manual
- Installs on Hard disk and RAM disk
- No royalties or copy protection
- Phone and network customer support provided

Pascal and Modula-2 source code are nearly identical. Modula-2 should be thought of as an enhanced superset of Pascal. Professor Niklaus Wirth (the creator of Pascal) designed Modula-2 to replace Pascal.

Added features of Modula-2 not found in Pascal

- CASE has an ELSE and may contain subranges
- Programs may be broken up into Modules for separate compilation
- Machine level interface
  - Bit-wise operators
  - Direct port and Memory access
  - Absolute addressing
  - Interrupt structure
- Dynamic strings that may be any size
- Multi-tasking is supported
- Procedure variables
- Module version control
- Programmer definable scope of objects
- Open array parameters (VAR r: ARRAY OF REALS;)
- Elegant type transfer functions

Ramdisk Benchmarks (secs)	Compile	Link	Execute	Optomized Size
Sieve of Eratosthenes:	6.2	4.3	3.5	2600 bytes
Float	6.4	4.8	8.3	4844 bytes
Calc	5.5	4.2	3.3	2878 bytes
Null program	5.1	3.2	—	2370 bytes

```
MODULE  Sieve;
CONST   Size  = 8190;
TYPE    FlagRange  = [0..Size];
        FlagSet  = SET OF FlagRange;
VAR     Flags: FlagSet;
        i:     FlagRange;
        Prime, k, Count, Iter: CARDINAL;
BEGIN   (*$S-,$R-,$A+ *)
  FOR Iter:= 1 TO 10 DO
    Count:= 0;
    Flags:= FlagSet(); (* empty set *)
    FOR i:= 0 TO Size DO
      IF (i IN Flags) THEN
        Prime:= (i * 2) + 3; k:= i + Prime;
        WHILE k <= Size DO
          INCL (Flags, k);
          k:= k + Prime;
        END;
        Count:= Count + 1;
      END;
    END;
  END;
END Sieve.
```

```
MODULE Float;
FROM MathLib0 IMPORT sin, ln, exp,
                     sqrt, arctan;
VAR x,y: REAL; i: CARDINAL;
BEGIN (*$T-,$A-,$S-*)
  x:= 1.0;
  FOR i:= 1 TO 1000 DO
    y:= sin (x); y:= ln (x); y:= exp (x);
    y:= sqrt (x); y:= arctan (x);
    x:= x + 0.01;
  END;
END float
```

```
MODULE calc;
VAR a,b,c: REAL; n, i: CARDINAL;
BEGIN (*$T-,$A-,$S-*)
  n:= 5000;
  a:= 2.71828; b:= 3.14159; c:= 1.0;
  FOR i:= 1 TO n DO
    c:= c*a; c:= c*b; c:= c/a; c:= c/b;
  END;
END calc.
```

Product History

The TDI Modula-2 compiler has been running on the Pinnacle supermicro (Aug. '84), Amiga (Jan. '86) and will soon appear on the Macintosh and UNIX in the 4th Qtr. '86.

Regular Version $79.95 Developer's Version $149.95 Commercial Version $299.95

The regular version contains all the features listed above. The developer's version supplies an extra diskette containing a symbol file decoder – link and load file disassemblers – a source file cross referencer – symbolic debugger – high level Windows library Module – Ramdisk and Print Spooler source files – Resource Compiler. The commercial version contains all of the Atari module source files.

Other Modula-2 Products

Kermit	– Contains full source plus $15 connect time to Compuserve.	$29.95
Examples	– Many Modula-2 example programs to show advanced programming techniques	$24.95
GRID	– Sophisticated multi-key file access method with over 30 procedures to access variable length records.	$49.95

TDI SOFTWARE, INC.

10410 Markison Road ■ Dallas, Texas 75238 ■ (214) 340-4942
Telex: 888442 Compuserve Number: 75026,1331

CIRCLE 061 ON READER SERVICE CARD

BY DAVID PLOTKIN, ANTIC CONTRIBUTING EDITOR

New Owners Column

Lesson 11: ATASCII, PEEK AND POKE

This series teaches beginners how to program in BASIC on all Atari 8-bit computers, such as the 800XL and the 130XE. The column began in March 1986 and, despite a lesson numbering inconsistency in Nov.-Dec. 1986, all lessons have appeared in proper order.

In Lesson 11 we'll cover several topics which just about finish the nitty-gritty components of BASIC programming. These include further information on the relationship between characters and numbers within your Atari, plus how to access the computer's memory directly. Next month we'll start on the fun stuff—color, sound, graphics and animation.

ASC AND CHR$

In Lesson 8 (November 1986), we discussed OPENing the keyboard and GETting a character:

```
10 OPEN #1,4,0,"K:":GET #1,A
```

This statement will wait until you press a key, then place the value of the key pressed into variable A. In this statement, A may only hold a numeric value. If you type PRINT A, you'll see that A does indeed contain a number, even if you pressed a letter on your keyboard. In fact, your computer treats all characters, including letters, numbers and the special [CONTROL] symbols as numbers.

The number the computer associates with each character is known as the **ATASCII** code (ATari American Standard Code for Information Interchange). You can find a table of these codes in Appendix D of *Your Atari Computer* by Lon Poole, Osborne/McGraw-Hill ($19.95). It's also in most other manuals.

For example, the ATASCII code for B is 66. Atari BASIC contains two commands for converting characters to their ATASCII code and back again. The first command is **CHR$**, which converts from the ATASCII code to the equivalent CHaRacter. This statement will print a capital B on the screen:

```
20 DIM A$(1):A$=CHR$(66):PRINT A$
```

CHR$ is important for several reasons. First, some numbers represent characters which can't be easily printed on the screen. For example, if you PRINT CHR$(125), the screen will be cleared. Besides clearing the screen, you can also move the cursor around on the screen under program control by PRINTing the CHR$ code correspond-

continued on next page

ing to the cursor arrows, or even insert or delete lines and characters on the screen by PRINTing the CHR$ code corresponding to [SHIFT] [INSERT] (for insert line) or other key sequences which perform these functions.

Furthermore, you probably also know how various printer options (such as double-strike, italics, etc.) can be activated by sending the printer [CONTROL] characters or a string of characters beginning with the ESCape character. Press the [ESC] key twice to get the ESCape character to print on the screen—it looks like a squiggle. You can put these characters directly into your program to be sent to the printer by using the **LPRINT** command.

But it's usually better to use the ATASCII code instead, especially if you want to dump a program listing to the printer. That's because most printers can't print the ESCape character—they just print a space. And the [CONTROL] characters, instead of printing out as part of the program listing, may activate the appropriate feature of your printer, inserting italics, underline, page feeds and other unwanted effects into the middle of your listing. For example, to send ESCape N to your printer, you could use:

```
10 LPRINT CHR$(27);CHR$(78)
```

The ATASCII code for ESCape is 27. Your printed listing of the program won't be affected and the statement will print out perfectly.

The opposite of the CHR$ command is **ASC** (from ASCII). It converts characters back to their ATASCII code:

```
10 A=ASC("C"):PRINT A
```

This prints 67, the ATASCII code for C. Quotes" "are needed with the ASC command, because ASC operates on a string. You will remember from Lesson 10 (January 1987) that "C" is considered a string constant. If you use a string variable like A$, the quotes are not needed:

```
10 DIM A$(1):A$=CHR$(67):B=ASC(A$)
```

A string like A$ can be defined in terms of CHR$. If you type PRINT A$, you would get the letter C, because 67 is the ATASCII code for C. You can define a string which has more than one element using CHR$:

```
10 DIM A$(4)

20 FOR LOOP=1 TO 4:READ Q

30 A$(LOOP,LOOP)=CHR$(Q)

40 NEXT LOOP

50 DATA 65,66,67,68

60 PRINT A$:REM Prints "ABCD"
```

If you PRINT ASC(A$), you will get 65, which is the ATASCII code for the first letter in string A$. ASC ignores the rest of the string.

PEEK AND POKE

There's 64K memory contained in the most widely used Atari 8-bit computer models—such as the 800, 800XL, 1200XL and 65XE models. (The Atari 400 and 600XL have 16K, the 130XE is rated at 128K.) This 64K memory actually consists of 65,536 **memory location** "boxes" numbered from 0 to 65535.

Each memory location can contain a number between 0 and 255. Often the value of the number in a particular memory location is important because it can give you valuable information. You use the **PEEK** command to tell you what number (0-255) is stored in a particular memory location:

```
10 A=PEEK(710)
```

In this statement, the value of the number stored in memory location 710 is placed into variable A.

An example of this process can be seen in this month's listing. Your Atari screen displays a particular section of computer memory, known as **screen memory**. Each character you see (including blanks) represents a number stored in one of the screen memory locations. Your Atari translates the number to a character and puts it on the screen.

By using PEEK, as in line 3010 of this month's Listing 1, NEWOWN11.BAS, we can see what number is stored in any memory location. PEEK will work with any memory location in your computer.

The number in screen memory, however, is not necessarily the ATASCII value of the character you see on the screen. Your Atari uses another set of codes for this purpose which are related to the ATASCII codes. The subroutine at line 3100 converts these values returned by the PEEK statement to ATASCII values so they can be sent to your printer.

The opposite of reading a number from a memory location is placing your own number there—using the **POKE** command:

```
10 POKE 710,66
```

This puts 66 into memory location 710. POKE is a very powerful and *dangerous* statement. You can do wonderful things like change screen colors, control sound, or display different portions of memory on your screen. (The above statement, for example, will change your screen color from blue to red.) But if you put the wrong number into the wrong memory location, your program may lock up!

You can tell you're suffering from a lock-up when the keyboard refuses to respond—and sometimes even pressing [RESET] doesn't bring it back. Then you'll have to turn off the computer, losing everything in memory. This is why you should always SAVE your latest version of a program before you RUN it.

You may POKE any number between 0 and 255 into a memory location. Attempting to POKE a number outside that range causes an error. Some memory locations will not accept the value you POKE into them. Typically, these are locations in the computer's ROM (Read Only Memory) which cannot be modified. No error occurs if

continued on page 62

Black Patch Systems

Dear Antic Readers,

It's our One Year Anniversary in Antic Magazine, and we've grown! Why? Because of you, our customers! We've provided good prices, service, and quality over the past year. But to serve you even better, we've added a new multitasking, multiuser, inventory control and customer service computer system. What does that mean for you? It means we can deliver to you the lowest prices and the highest quality in computer equipment, efficiently and quickly, while maintaining the high quality of customer service you've come to expect. Thank you for making us the Nation's Number One Atari Direct Merchant*. Try us now! We're better than ever!

Thank you,

Black Patch Systems

* As Rated By Current Notes, October, 1986.

Magic Sac+

- Runs most MacIntosh Software
- 20% faster than MacIntosh
- 30% larger screen than MacIntosh
- Built-in clock/calendar in both MacIntosh and ST mode.

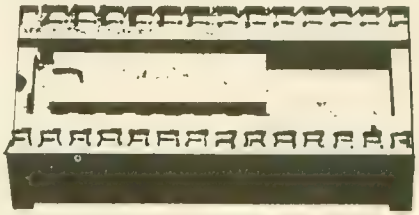
$129.95 **$169.99*** WITH ROMS

*MacIntosh ROMS required for product use.

Introducing the Black Patch Systems 1987 product line...

Surreal-Time Clock

For Atari 520/1040 ST Series Computer



FEATURING:
- No Batteries
- Internal Installation
- Automatic Operation
- No Solder Connections
- Plugs Under O/S ROM
- All Program Compatibility

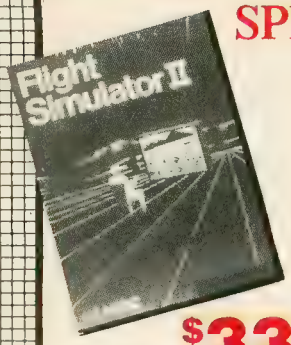
The Surreal-Time Clock will eliminate the need to enter correct time and date every time your ST is turned on. It installs inside your ST computer leaving your cartridge slot free for other products. Installation takes only minutes and requires no tape, glue, or soldering. An internal lithium cell will last 10 years and cannot leak. Typical accuracy is better than one min./month. Once installed, operation is automatic Programs supplied allow the Surreal-Time Clock to be easily turned on or off for prolonged periods of inactivity.

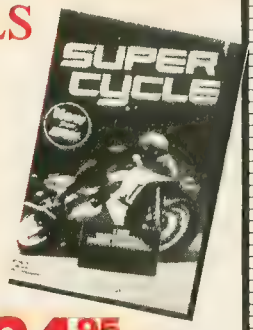
Suggested List Price **$49.95** - 520 ST or **$64.95** - 1040 ST
Distributed exclusively through BLACK PATCH SYSTEMS.
Dealer inquiries are welcome.

SEE THE NEXT TWO PAGES FOR MORE BLACK PATCH SPECIALS

Black Patch Systems

SPECIALS





$33.99 **$24.95**

Rated #1

We are the #1 rated Atari Direct Merchant in the Nation - *Current Notes Survey 10/86*

ST HARDWARE

1040 ST MONO	CALL
1040 ST RGB	CALL
520 ST MONO	CALL
520 ST RGB	CALL
SF354 SS/DD	CALL
SF314 DS/DD	CALL
SM124 MONOCHROME	CALL
SC1224 RGB	CALL
SHD 204 DRIVE	CALL
SMM804 PRINTER	CALL
ST PRINTER CABLES	12 00
ST MODEM CABLES	12 00

PRINTERS

ATARI SMM 804	CALL
ATARI XMM 801	CALL
EPSON LX-80	CALL
FX-85	CALL
FX-286	CALL
LQ-800	CALL
LQ-1000	CALL

MODEMS

OMI 1200ST	129 00
ATARI XM301	35 75
ATARI 1200	CALL
SUPRA 300AT	33 99

DISKS

3½" DISKS
SONY PACKS OF 10

SS/DD	15 00
DS/DD	21 00

5¼" DISKS
BONUS PACKS OF 10

SS/DD	6 00
DS/DD	7 00

ST SOFTWARE

ACTIVISION

BORROWED TIME	32 50
HACKER	28 99
HACKER 2	31 75
MINDSHADOW	32 50
LITTLE COMPUTER PEOPLE	32 50
PAINTWORKS	43 99
MUSIC STUDIO	37 99
CHAMP BASEBALL	CALL
PORTAL	CALL
BASKETBALL	CALL
GAMEMAKER	CALL
PEBBLE BEACH	CALL

ACCESS

LEADER BOARD	25 99

ACCOLADE

MEAN 18	26 99

ATARI

HOME PLANET	23 75
JOUST	23 75
STAR RAIDERS	23 75
DBMAN	CALL
CP/M EMULATOR	CALL
IBM EMULATOR	CALL

ACADEMY

TYPING TUTOR	24 50

ANTIC

A-CALC	39 99
A-SEKA	23 99
A-RAM	14 50
CAD 3-D	33 99
FLASH	27 50
GST C	59 99
GST ASSM	53 50
EXPERT OPINION	66 50

BATTERIES INCLUDED

DEGAS	25 99
BTS THE SPREADSHEET	CALL
THE CONSULTANT	CALL
PORTFOLIO	CALL
I*S TALK	49 50
PAPERCLIP ELITE	CALL
DEGAS ELITE	CALL
I*S TIME	CALL
HOMEPAK	CALL
THUNDER	25 99
TIME_LINK	32 50
B/GRAPH ELITE	CALL

CENTRAL POINT

COPY II ST	25 99

EPYX

ROGUE	25 99
WORLD GAMES	25 99
WINTER GAMES	25 99
CHAMP WRESTLE	25 99
TEMPLE OF APSHAI	25 99

FIREBIRD

THE PAWN	28 99
STAR GLIDER	28 99
GOLDEN PATH	28 99

BECKMEYER

MICRO C SHELL	34 99
MICRO RTX	47 99
MTC SHELL	54 75

MICHTRON

BBS	33 75
M-DISK	26 75
SOFTSPOOL	26 75
ANIMATOR	27 50
TIME BANDITS	26 75
MAJOR MOTION	27 50
CORNERMAN	33 75
MIGHTY MAIL	33 75
GOLD RUNNER	27 50
DOS SHELL	27 50
PERSONAL MONEY	33 75
UTILITIES	CALL
BUSINESS TOOLS	33 75
D F T	33 75
KISSED	27 50
MISSION MOUSE	27 50

MICROPROSE

SILENT SERVICE	26 99
GUNSHIP	CALL
F-15 STRIKE	CALL

MI-GRAPH

EASY DRAW	96 99

MINDSCAPE

BRATACCUS	31 50

OMNITREND

UNIVERSE 2	47 99

OSS

PERSONAL PASCAL	47 50
PERSONAL PROLOG	47 50

ORIGIN SYSTEMS

ULTIMA III	CALL
ULTIMA IV	CALL

REGENT

REGENT BASE	66 50
WORD/SPELL	34 99
REGENT WORD II	66 50

SIERRA ON-LINE

KINGS QUEST I	33 75
KINGS QUEST II	33 75
ULTIMA II	39 99
BLACK CAULDRON	27 50
WINNIE THE POOH	16 99
ST ONE-WRITE	64 50

SSI

PHANTASIE	26 50
BASKETBALL	CALL

SUBLOGIC

FLIGHT SIMULATOR	CALL
JET	CALL

UNISON WORLD

PRINTMASTER	25 99
ART GALLERY 1	19 99
ART GALLERY 2	19 99

XLENT SOFTWARE

RUBBER STAMP	25 99
MUSIC BOX	31 75
TYPESETTER	25 99

QMI

ST TALK	10 50
ST-NET	CALL

METACOMCO

MCC PASCAL	73 49
LATTICE C	97 99
MACRO ASSEMBLER	54 75

TDI

USCD PASCAL	52 50
MODULA-2	52 50
MODULA-2 DEV	98 93

STARTRONIKS

FONT WRITER	28 99
DESK MASTER	28 99

TIMEWORKS

WORDWRITER ST	51 99
DATA MANAGER ST	51 99
SWIFTCALC ST	51 99

FTL

RPV	25 99
MICRO COOKBOOK	32 50
DUNGEON MASTER	25 99

ELECTRONIC ARTS

CHESS MASTER 2000	31 50
FINANCIAL COOKBOOK	34 99

COMMNET

FOREM	CALL
ST TERM	20 99

PARADOX

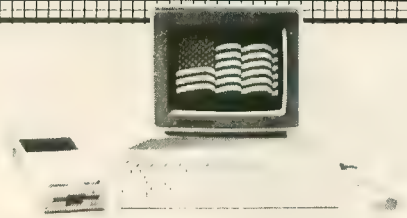
ST KARATE	25 99
ST SPACE STATION	25 99
ST PROTECTOR	24 99

PSYGNOSIS

DEEP SPACE	32 99
ARENA	25 95

MISC.

MEGAMAX C	173 99
HENRY'S BASIC	32 99
MICROLEAGUE BASEBALL	CALL
FORTRAN 77	99 95
TIMESAVER	34 99
ACTION PAK	29 99
LOGIKRON CLOCK	34 95
ST POOL	18 99
SUNDOG	26 99
VIP PROF	CALL
ZOOMRACKS	49 99
GRAPHIC ARTIST	CALL
MINDWHEEL	61 50
DAC ACCOUNTING	46 99
GATEWAY	27 50
LDW BASIC	46 50
ST STATION	69 99
HARRIER STRIKE MISSION	CALL
1 MEG UPGRADE	134 95
ABACUS	CALL
ANSIGRAPH	54 99
SUPER HUEY	25 99
MERCENARY	19 99
PSION CHESS	42 99
INFOCOM	CALL
MARK WILLIAMS C	CALL
WRITE 90 DEGREES	19 99



Black Patch Systems

VISA MasterCard

Orders Only

Call TOLL FREE 1-800-ATARI-02 or 301-987-2300 (toll call)

Write: Black Patch Systems, P.O. Box 501, Arnold, MD 21012

For technical information or order inquiries, call 301-987-0019

HOW TO ORDER: CASHIER CHECK, MONEY ORDER NO PERSONAL CHECKS NO C O D S SHIPPED UPS ALL PRICES AND POLICIES SUBJECT TO CHANGE WITHOUT NOTICE
SOFTWARE: ALL PRICES INCLUDE SHIPPING NO CREDIT CARD SURCHARGE FREE AIR SHIPPING ON PURCHASE OF SOFTWARE OVER $150 00
HARDWARE: ONLY 2% CREDIT CARD SURCHARGE SHIPPING ORDERS UNDER $100 00 ADD $3 00 SHIPPING ORDERS OVER $100 00 ADD $5 00
INTERNATIONAL: WILL INCLUDE ACTUAL FREIGHT CHARGED ON ALL ORDERS OUTSIDE THE CONTINENTAL U S , INCLUDING A P O
POLICIES: NO RETURNS WITHOUT AN AUTHORIZED NUMBER NO RETURNS UNLESS DEFECTIVE ALL DEFECTIVE ITEMS WILL BE EXCHANGED NO EXCEPTIONS

NO CREDIT CARD SURCHARGE ON SOFTWARE ORDERS.
FREE SHIPPING ON ALL SOFTWARE/FREE AIR SHIPPING ON ALL SOFTWARE OVER $150.

CIRCLE 019 ON READER SERVICE CARD

One Year Anniversary Sale

PRINTERS

PANASONIC

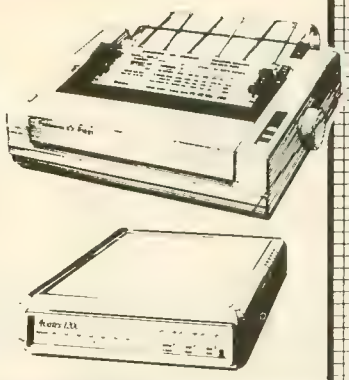
1080i	214.00
1091	229.00
1091i	CALL
1092	309.00
1592	425.00
3131	259.00
3151	CALL

STAR MICRONICS

NX-10	234.00
NL-10	CALL
LV-1210	169.00
NB-515	CALL

MODEMS

AVATEX 1200	78.99
AVATEX 1200HC	128.99
HABA 1200	109.00



Coming in 1987

Look for the Black Patch Systems Newsletter

ATARI 8-BIT HARDWARE

130XE	119 94
1050	119.50
INDUS GT.	179 00
ATARI 1027	84 00
65XE	87 00
XM301	35 75

ACCESSORIES/INTERFACES

US DOUBLER	45 00
RAMBO XL	26 00
R-TIME	45 00
P R CONNECTION	54 99
SUPRA MICROPRINT	31 00
SUPRA 1150	45 00
MICROSTUFFER	59 00
ATARI 850	105 00
MIO	CALL
XEP80	CALL

ATARI 8-BIT SOFTWARE

ACCESS

LEADER BOARD	25 99

ACCOLADE

RAID OVER MOSCOW	25 99
BEACH HEAD II	25 99
HARDBALL	22 99
FIGHT NIGHT	22 99

BRODERBUND

PRINTSHOP	27 99
P S LIBRARIES	16 99
PRINTSHOP COMPANION	23 75
CH. .ODE RUNNER	19 99
LODE RUNNER	22 99
KARATEKA	19 99

BATTERIES INCLUDED

B/GRAPH	25 75
PAPERCLIP W/SPELL.	36 50
HOMEPAK	31 99

OSS

ACTION!	48 99
BASIC XE	48 99
BASIC XL	37 75
MAC/65	48 99
OSS TOOLKIT	19 99

SUBLOGIC

FLIGHT SIMULATOR II	33 50
JET	15 50
SCENERY DISKS	CALL

EPYX

WORLD CHAMP KARATE	19 99
RESCUE AT FRACT	25.99
KORONIS RIFT	25 99
THE EIDOLON	25 99
SUMMER GAMES	25 99
TEMPLE APHSAI TRILOGY	25 99

XLENT

WORD PROC.	19 99
MEGAFONT II+	16.99
MIN GOLF	19 99
PAGE DES	19 99
RUBBER STAMP	19.99
TYPESETTER	22 99

MICROPROSE

CONDOR	CALL
CONFLICT IN VIETNAM	25.75
CRUSADE IN EUROPE	25 75
DECISION IN DESERT	25 75
DESTROYER ESCORT	CALL
GUNSHIP	CALL
KENNEDY APPROACH	22 99
SOLO FLIGHT	22 99
F-15 STRIKE EAGLE	22.99
SILENT SERVICE	22 99

ACTIVISION

HACKER	16 99
SPACE SHUTTLE	16.99
MINDSHADOW	16 99
GREAT AMER. RD RACE	16 99
GHOSTBUSTERS	16 99

FIREBIRD

CHIMERA	13 99
GOLDEN PATH	22 99
THE PAWN	28 99

ATARI

ATARIWRITER PLUS	19 99
LEARNING PHONE	19 99
SILENT BUTLER	19 99
STAR RAIDERS II	13.99

SYNAPSE

SYNFILE +	32 50
SYNCALC	32 50

ORIGIN

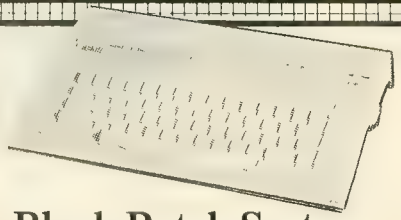
ULTIMA IV.	41 50

SSI

USAAF	37 50
MECH BRIGADE	37.50
GETTYSBURG	38 49
GEMSTONE HEALER	25 99
FIGHTER COMMAND	38.49
PHANTASIE	25.99
BATTALION COMMANDER	25 99
BATTLE OF NORMANDY	25 99
BATTLE OF ANTIETAM	31 49
BRKTHRU IN ARDENNES	38 49
BROADSIDES	25 99
CARRIER FORCE	38 49
COLONIAL CONQUEST	25 99
COMBAT LEADER	25 99
COMPUTER AMBUSH	38 49
FIELD OF FIRE	25 99
KAMPFGRUPPE	38 49
KNIGHTS OF THE DESERT	25 95
OBJECTIVE KURSK	25 99
OPER MKT GARDEN	31 49
PANZER GENIDER	25 99
REFORGER 88	38 49
SIX GUN SHOOTOUT	25 99
TIGERS IN THE SNOW	25 99
WAR IN RUSSIA	49 99
COMPUTER QB	25 99
GEMSTONE WARRIOR	22 49
IMPERIUM GALACTIUM	25 99
COSMIC BALANCE	25 99
50-MISSION CRUSH	25 99
GALACTIC ADVENTURES	38 49
QUESTRON	31 49
WIZARD'S CROWN	25 99

MISC.

1050 HAPPY ENHANCE	125 00
810 VERSION 7 UPGRADE	29 95
1050 CONTROLLER	29 95
GAMES COMPUTERS PLAY	23 95
VIRTUOSO SOFTWARE	CALL
BUZZWORD	29 99
WARGAME CONST KIT	25 99
INFOCOM	CALL
INDUS EXPANDER	95 00
U S DOUBLER w/o S D	28 99
CHIPMUNK	29 95



Black Patch Systems

Orders Only

Call TOLL FREE 1-800-ATARI-02 or 301-987-2300 (toll call)

Write: Black Patch Systems, P.O. Box 501, Arnold, MD 21012

For technical information or order inquiries, call 301-987-0019

HOW TO ORDER: CASHIER CHECK, MONEY ORDER NO PERSONAL CHECKS NO C O D'S SHIPPED UPS ALL PRICES AND POLICIES SUBJECT TO CHANGE WITHOUT NOTICE

SOFTWARE: ALL PRICES INCLUDE SHIPPING NO CREDIT CARD SURCHARGE FREE AIR SHIPPING ON PURCHASE OF SOFTWARE OVER $150 00

HARDWARE: ONLY 2% CREDIT CARD SURCHARGE SHIPPING ORDERS UNDER $100 00 ADD $3 00 SHIPPING ORDERS OVER $100 00 ADD $50 00

INTERNATIONAL: WILL INCLUDE ACTUAL FREIGHT CHARGED ON ALL ORDERS OUTSIDE THE CONTINENTAL U.S , INCLUDING A P O

POLICIES: NO RETURNS WITHOUT AN AUTHORIZED NUMBER NO RETURNS UNLESS DEFECTIVE ALL DEFECTIVE ITEMS WILL BE EXCHANGED NO EXCEPTIONS

NO CREDIT CARD SURCHARGE ON SOFTWARE ORDERS.
FREE SHIPPING ON ALL SOFTWARE/FREE AIR SHIPPING ON ALL SOFTWARE OVER $150.

CIRCLE 019 ON READER SERVICE CARD

BY GREGG PEARLMAN, ANTIC JUNIOR EDITOR

WAACE

D.C.'s 1,500 Atarians

WAACE, the Washington Area Atari Computer Enthusiasts, is a pioneering regional federation of nine Atari users groups, serving some 1,500 members in the District of Columbia, Maryland and Virginia.

WAACE has no directors or officers and it doesn't hold meetings of its own. It exists as a vehicle for officers of the independent clubs to coordinate efforts for several major regional activities.

WAACE publishes Current Notes, an impressive users group magazine that had 68 pages and a slick-paper cover for its most recent issue. The print run of each issue is some 3,000 copies. Nearly half of the printing is sold to the general public at local stores, or subscribed to by non-members. Current Notes has been a model for other regional Atari users group publications such as The Atari Journal in South Florida, spearheaded by DAUG.

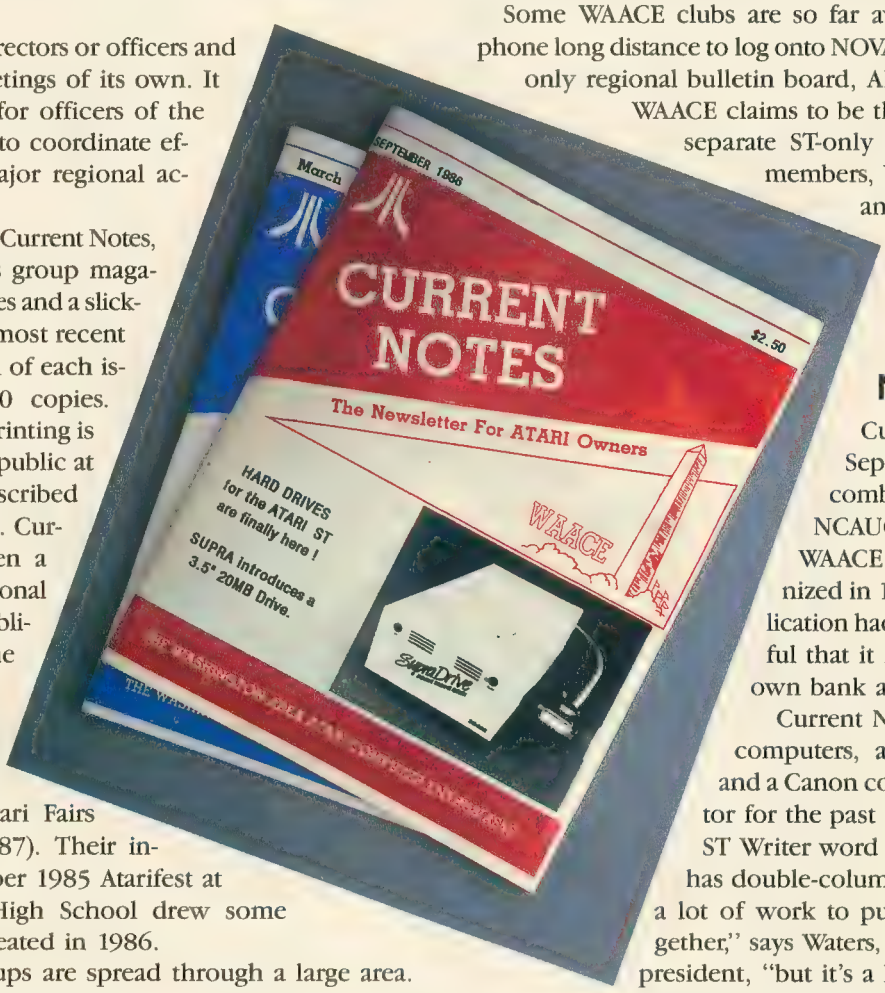
WAACE also pioneered regional Atari Fairs (**Antic**, January 1987). Their independent November 1985 Atarifest at Fairfax (Virginia) High School drew some 2,000 and was repeated in 1986.

The WAACE groups are spread through a large area. NCAUG, the National Capitol Atari Users Group, meets in downtown Washington D.C. The Northern Virginia group, NOVATARI, meets in Springfield, 10 miles south. NOVATARI is the largest WAACE club, with 550 members. Six local NOVATARI chapters—Burke, Greenbriar, Mt. Vernon/Hybla Valley, Reston, Sterling and Vienna—hold their own monthly meetings too.

WACUG, the Woodbridge, Virginia group, meets 25 miles south of downtown D.C. The Frederick, Virginia group, FACE, is 30 miles away in another direction. The Maryland groups are *north* of Washington D.C. CPM (Capital Pro Micro-Users) and AURA (Atari Users Regional Association) are both about 10 miles from the Capitol. Southern Maryland's SMAUG is 30 miles northward.

Some WAACE clubs are so far away that they must phone long distance to log onto NOVATARI's subscription-only regional bulletin board, ARMUDIC.

WAACE claims to be the home of the first separate ST-only clubs. Now at 275 members, VAST began in 1985 and is still officially NOVATARI'S ST SIG. EAST covers Southern Maryland.



Mary Rhomberg Lovery

CURRENT NOTES

Current Notes began in September, 1981 as the combined newsletter of NCAUG and NOVATARI. WAACE was actually organized in 1985, when the publication had become so successful that it needed to set up its own bank account.

Current Notes has its own ST computers, a KISS laser printer and a Canon copier. Joe Waters, editor for the past three years, uses the ST Writer word processor because it has double-column printing. "It takes a lot of work to put Current Notes together," says Waters, a former NOVATARI president, "but it's a lot easier when you have a finished page roll off the laser printer in 10 or 15 seconds."

ATARIFEST

WAACE originated the term Atarifest because their users fair almost coincided with the popular local Oktoberfests. Fairfax High School let WAACE use 24 rooms of the building—with the proviso that no admission be charged. Thus the whole affair was free to the public, but WAACE

continued on next page

MICROTYME

ATARI

VISA

ATARI

MasterCard

A DIVISION OF MICRO PERIPHERALS, INC.

P.O. BOX 369 • KETTERING, OHIO 45409

HARDWARE/ACCESSORIES

ATARI

ST's Color or Mono	CALL
ST Monitor Cables	CALL
SF 314 Double Sided Drive	CALL
Supra 20, 30, 60 Meg Hard Disks	CALL
SH 204 20 Megabyte Hard Disk	CALL
SC 1224 RGB Color Monitor	CALL
130 XE	CALL
65 XE	CALL
1050 Disk Drive	CALL
1020 Color Printer/Plotter	27
Astra "The One"	284
7800 Pro System & Software	CALL
Power Supply 400/800/810 1050/850	15
Power Supply 600/800 XL, 130 XE	26
Power Supply for Indus GT	15

PANASONIC

KX-P1080i, 120 cps, 5NLQ modes	CALL
KX-P1091i, 160 cps, new model	CALL
KX-P1092 80 col, True 180 cps	339
KX-P1592 136 col, True 180 cps	549
KX-P3131 L.Q. Daisy, 80 col	279
KX-P3151 L.Q. Daisy, 136 col	429
KX-P110 Ribbon, Blk	9
COLOR RIBBONS	11

CITIZEN

MSP-10	CALL
MSP-15	CALL

STAR MICRONICS

NX-10 (80 col) NEW MODEL	CALL
NL-10	CALL
NX-15 (135 col)	429
STAR SG-10 Ribbons	4
Ribbons NL or NX	CALL

MODEMS

ATARI 1030	45
XM-301 Direct Connect	CALL
HAYES 1200 Smartmodem	399
US ROBOTICS COURIER 2400-100% Hayes!	429
HABA 1200 (Hayes Compatible)	119
VOLKSMODEM VM 520 (Hayes Compat)	149
AVATEX 1200 bps **Special**	99
AVATEX 1200 H.C. (Hayes Compatible)	149

INTERFACES/BUFFERS

ATARI 850 In Stock!	119
P:R: CONNECTION (100% 850 compatible)	66
CABLES - We've Got 'Em	CALL
XETEC GRAPHIX AT	39
SUPRA/MPP MICROPRINT	39
SPECIAL SUPRA MICROSTUFFER (64K)	59
SUPRA/MPP 1150	CALL

MONITORS

TEKNIKA MJ-22 RGB and Composite	279
THOMSON Green W/Audio	85
THOMSON Amber W/Audio	90
THOMSON Composite Color	CALL
THOMSON, RGB and Composite	CALL
SAKATA SC100	159

EPSON

LX-86 (80 col)	CALL
FX-85 (80 col)	CALL
FX-286 200 cps (135 col)	CALL
Tractors	CALL

ACCESSORIES

ST - COVERS, Heavy Grade Vinyl	8
ST - MOUSE MAT	10
ST - 6' Printer Cable	19
ST - Modem Cable (to Hayes, etc.)	17
ST - Monitor Stand, Swivel & Tilt	15
ST Clock Internal or Plug-In	ea 41
Disk File for 3.5" disks (holds 40)	9
Flip N File DATA CASE (holds 50) 5¼	8
Disk File, with Lock (holds 100!) 5¼	13
Power Strip, 6 outlet, (15 amp Surge)	15
Deluxe Power Strip w/Spike & Surge	24
Printer Stand, Heavy Duty, Sloping	13
ATARI "Standard" Joystick	7
Epyx 500XJ Joystick	15
WICO Bat Handle Stick	17
Competition Pro 5000X Stick	18
6' Atari Serial I/O Cable	7
Book of Adventure Games I or II	15
Disk Notcher	5
Compuserve Starter Kit	24
U.S. DOUBLER (Dbl. Density for 1050)	49
U.S. DOUBLER without Sparta DOS	29
"Duplicator" for 1050 Disk Drive	125

PRINTER SUPPLIES

MAILING LABELS, White, 500 pack	3
per 1000	4
Blu, Pnk, Gn, Yel, 800 pack (200 ea)	9
per 500, any 1 color	5
per 1000, any 1 color	7
Big Labels, 1-7/16x4", White, per 500	5
PRINTER PAPER, Micro-Fine perfs, 20 lb.	
500 sheets, Pure White Bond	8
1000 sheets, same as above	14
PRINTSHOP "Rainbow" Color Paper Packs	
Pastels (5 colors), 50 sheets of ea	12
Matching Envelopes, 20 of each	6
Brights (8 colors), 50 sheets of ea	29
Matching Envelopes, 20 of each	10
ALL 13 colors, 50 sheets of each	39
Matching Envelopes, 20 of each	14

SOFTWARE

We can't list it all. . .call if you don't see it!

8-BIT SOFTWARE

ATARI

Atariwriter Plus	35
Proofreader	12
Silent Butler	18
Learning Phone	16
Star Raiders II	13
OTHERS	CALL

ACCESS

Triple Pack	14
Leader Board	26
Tournament Disks	14

ACCOLADE

Hardball	20
Fight Night	20

BATTERIES INCLUDED

Paperclip w/Spellpak	39
Homepak	33
B-GRAPH	27

ACTIVISION

Music Studio	23
Mind Shadow	17

ARTWORKX

Strip Poker	19
S.P. Data Disks each	13

BRODERBUND

Championship Loderunner	18
Karateka	18
Loderunner	23
Print Shop	28
Print Shop Companion	24
Graphics Library 1,2, or 3	ea 16

DATASOFT

Alternate Reality	27
Never Ending Story	21

ELECTRONIC ARTS

Racing Destruction Set	12
Super Boulderdash	12
Touchdown Football	12
Ultima IV	43
Many Other Titles ... **CALL**	12

EPYX

Summer Games II	26
Winter Games	26
World Karate Championship	19

INFOCOM

Hitchhiker's Guide	23
Spell Breaker	29
All Others	CALL

O.S.S.

Action	46
Basic XL	36
MAC/65	46
Tool Kits for above	ea 19
Basic XE	46

SSI

Mech Brigade	38
War Game Const. Set	19
NAM	26
USAAF	38
OTHERS	CALL

SUBLOGIC

Flight Simulator II	37
Scenery Disks 1-6	ea 15
All 6 Scenery Disks	74

SYNAPSE

SYN CALC	31
SYN CALC TEMPLATES	13
SYN FILE +	31

XLENT

Typesetter	22
Rubber Stamp	20
Page Designer	20
Megafont II	16
P.S. Interface	19
Word Processor	20

ST SOFTWARE

ATARI

1st Word	32
DB Master One	33
Joust	19
Star Raiders	19

ABACUS

Text Pro	33
Paint Pro	33
Datatrieve	33
Power Plan	52
PC Board Designer	CALL

ACCESS

Leader Board	26
Tournament Disks	ea 14

ACCOLADE

Mean 18	33
Hardball	CALL

ACTIVISION

Hacker	29
Hacker II	33
Little Computer People	31
Paintworks	46

ANTIC

A-CALC	45
CAD-3D	36
Flash	29
Expert Opinion	72

ARTWORX

Strip Poker	26
Bridge 4.0	20
Peggammon	12

BATTERIES INCLUDED

B-Graph Elite	CALL
D.E.G.A.S. Elite	49
IS Talk	51
Paperclip Elite	CALL
Thunder	26
Time Link	32

ELECTRONIC ARTS

Chessmaster 2000	31
Sky Fox	29
Ultima III	39
Ultima IV	CALL

EPYX

Summer Games	26
Winter Games	26
Super Cycle	26
Championship Wrestling	26
World Games	26
Rogue	26
Temple of Apshai	26

INFOCOM

All Titles	CALL

MICHTRON

Business Tools	26
Cornerman	32
DOS Shell	32
M-Disk	26
Mighty Mail	32
Soft Spool	26
Personal Money Manager	32
Utilities	39
Time Bandits	26
Major Motion	26

FIREBIRD

Starglider	29
The Pawn	29

REGENT

Regent Base	67
Regent Word II	67

SIERRA-ON-LINE

ST ONE WRITE	66
Donald Duck's Playground	19
Ultima II	39
Kings Quest I, II or III	ea 33
Space Quest	33

TIMEWORKS

Data Manager ST	52
Swift Calc ST	52
Word Writer ST	52

UNICORN

Math Wizard	26
Fraction Action	26
Decimal Dungeon	26
Read & Rhyme	26

UNISON WORLD

Print Master	26
Art Gallery I, II or III	ea 19

ST LANGUAGES

MODULA 2	54
• Developer's Kit	99
MARK WILLIAMS C	119
LATTICE C	109
GST-ASM	45
ASSEM PRO	39

DISKETTES

Prices Are Per Box/Pack of 10 — **Prices Are Per Box/Pack of 10**

5¼"	GENERIC		SONY	MAXELL	BONUS		WABASH	3½	SONY		MAXELL	VERBATIM
	SS/DD	DS/DD	SS/DD	DS/DD	SS/DD	DS/DD	SS/DD		SS/DD	DS/DD	SS/DD	SS/DD
2-5	6.95	7.95	9.50	11.95	8.95	10.95	8.50	2-5	15.00	24.00	15.00	14.00
6-10	5.95	6.95	8.50	10.95	7.95	9.95	7.50	6-10	14.00	22.00	14.00	13.00

Rainbow Colored Centech Disks (2 ea. of 10 colors per pkg) **17**

"Silver" Centech Disks (20 Pack) **17**

TO ORDER, CALL TOLL FREE 1-800-255-5835

M-F 9am - 9pm • EST • SAT 10am - 4pm

Ohio Residents, Order Status or Tech, Info Call (513) 294-6236

TERMS AND CONDITIONS

• NO EXTRA CHARGES FOR CREDIT CARDS! • We do not bill until we ship • Minimum order $20 • C.O.D. to continental U.S. only, add $3 • Ohio residents add 6% sales tax • Please allow 3 weeks for personal or company checks to clear • Shipping/Handling: (Call for Quote). Hardware, minimum $4; Software and most accessories, minimum $3 • Overnight shipment available at extra charge • We ship to Alaska, Hawaii, Puerto Rico (UPS Blue Label Only), APO, and FPO • Canadian orders, actual shipping plus 5%, minimum $5 • All defective products require a return authorization number to be accepted for repair or replacement • No free trials or credit • Returns subject to 15% re-stocking charge • Due to changing market conditions, call toll free for latest price and availability of product. FOR YOUR PROTECTION, WE CHECK ALL CREDIT CARD ORDERS FOR FRAUD.

CIRCLE 044 ON READER SERVICE CARD

AMAZING PRODUCTS
from
Computer Software Services

ATARI

ATARI

Space is limited so we'll get to the point! Our product line has grown to **24** truly **AMAZING** products, each representing an outstanding value. Call or write for our **FREE** catalog today!

1. The "BLACK PATCH!" Only $49.95
A **disk only** program that copies and **unprotects** hundreds of your heavily protected software programs. Many of these unprotected programs can now be converted to DOS executable files. Works with any **unmodified** disk drive!

2. The "ARCHIVER ENHANCEMENT!" Only $29.95
A device that is installed into your Atari 810 or 1050 disk drive that greatly **enhances** the **copying capabilities** of your ARCHIVER or HAPPY ARCHIVER backup programs.

3. The "ULTRA SPEED!" Only $49.95
An enhanced operating system for XL/XE owners that nearly **triples** the high speed read/write capabilities of 1050 disk drives having a KLONE, HAPPY BACKUP, DUPLICATOR, or U.S. Doubler! Numerous other built in features. Works with any DOS or unprotected software. **Fully automatic.** Instantly switchable between your original OS or our ULTRA SPEED OS! Works in single or **double** density.

4. The "KLONE!" Only$69.00
Newly **improved** version now available! Installs into any Atari 1050 and provides the following enhancements: Allows **copying** of protected software, provides **hi-speed** read/write capabilities, transforms your 1050 into a **true DOUBLE DENSITY** drive plus much more!

5. The "RICHMANS 80 COLUMN Word Processor!" Only $59.95
A very powerful **80 column** work processor that is easy to use AND gives you a **FULL 80 COLUMNS** on the screen with **NO** hardware modifications! Absolutely the finest available! Works with any TV or Monitor. Rat/Mouse enhanced. 52k RAM memory required.

The **FUZZY/PHANTOM** sector maker, **The MIRACLE, The DISKCRAKER,** The Impossible **ANALYZER, THE ULTRA MENU/DOS** plus 14 other innovative products . . . many at specially **reduced prices** in time for Christmas! **DEALER/DISTRIBUTOR/USER GROUP discounts** available!

Master Card - Visa phone orders.
Money Orders - Check mail order.
Specify computer and **drive model numbers. Add $4** shipping/handling
(N.Y. State residents add 7% tax.)

COMPUTER SOFTWARE SERVICES
P.O. BOX 17660
ROCHESTER, N.Y. 14617
(716) 467-9326
CIRCLE 021 ON READER SERVICE CARD

NEW OWNERS COLUMN
continued from page 56

you do this, but the number you put into the memory location simply won't be there when you PEEK it.

TYPE-IN CALENDAR

This month's listing is a Weekly Calendar Planner. Type in Listing 1, NEWOWN11.BAS, check it with TYPO II and SAVE a copy before you RUN it.

From the main menu, you can choose any month of any year. You'll be presented with each week, so you can jot down appointments and other things-to-do for each day. Note that you cannot over-write the month and day/date appearing every three lines.

You can save the month's data to disk, or recall data you saved during an earlier session. You can erase old months from the disk. From the screen you can dump any week to the printer—two weeks will fit on each sheet of paper. You can also proceed to the next week without printing. When you reach the end of the month, you'll cycle around to the first week again. The prompts are self-explanatory in the main menu and the data screens.

This program makes extensive use of CHR$ (and string manipulation, which was covered in last month's lesson). It also uses PEEK as a fast way to read the screen. I stayed away from fancy graphics in the printer output, so just about any printer should be able to use the program, including letter-quality printers which have no graphics at all.

Listing on page 97

WAACE
continued from page 60

made money on vendor booths and disk library sales.

THE BBS

The name of NOVATARI's subscription bulletin board, ARMUDIC, was taken from the letters of its *original* phone number. (The current phone number is (703) 569-8305.) NOVATARI makes the BBS available to everybody—for a small fee. Sysop Ted Bell has made ARMUDIC into one of the better and more popular bulletin boards in the area. There are plenty of subscribers and you can't log on otherwise. No pirated software is allowed on the BBS.

NOVATARI SURVEY

Antic has prepared a survey which will be completed by each Users Group of the Month, in order to make this new feature even more useful. The following information was provided by NOVATARI president Ed Seward.

In a poll of NOVATARI members, 58% primarily use 800, 800XL or 130XE computers, 30% use 520STs (Seward reports a trend toward 1Mb upgrades) and 10% use 1040STs. Only 1% have hard disks, but everyone who uses an 8-bit computer has a disk drive.

The most popular 8-bit drives are the Atari 1050, Indus GT and Atari 810. Of ST users, 65% have single-sided drives, 35% have double-sided drives. Panasonic 1091 printers are used by 30% of the members.

Seward said that the most popular modems, used almost equally, are the Atari 1030/XM301, Hayes 1200 Smartmodem and Avatex 1200. More than 99% of ST owners with modems use a 1200-baud modem.

Among programmers, the top three 8-bit languages are ACTION!, BASIC XL and assembler. ST users favor Pascal—almost exclusively Personal Pascal—C and assembly language. Of those who build hardware projects, 5% modify their systems themselves.

The kinds of software most widely used by members are ranked here in order of importance:

1. Word processing
2. Communications
3. Programming
4. Business/Financial
5. Education

WAACE STATISTICS

NOVATARI (Northern Virginia Atari Users Group)	550
AURA (Atari Users Regional Association)	250
NCAUG (National Capital Atari Users Group)	110
WACUG (Woodbridge Atari Computer Users Group)	110
FACE (Frederick Atari Computer Enthusiasts)	55
SMAUG (Southern Maryland Atari Users Group)	34
CPM (Capital Pro Micro-Users)	33
Non-member subscribers to "Current Notes"	400

Current Notes
122 N. Johnson Road
Sterling, VA 22170
10 issues yearly $15 per year ($23 foreign)

PSYGNOSIS

The MARKET LEADER IN EUROPE

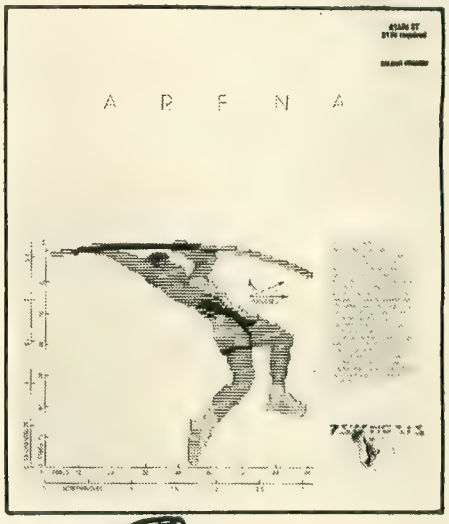
for software is bringing their software for the ST & Amiga to America. Now available are two of Europe's hottest sellers. Find out what the Europeans are raving about, order yours now.

DEEP SPACE

A strategy arcade simulation with dazzling graphics.

ARENA

A life like athletic animation of Olympic type Decathalon events.



Be First - Order Yours Now

See what Europe is *RAVING* About

And they're available at popular prices!

Available at your local dealer.
Dealer inquires invited

Distributed exclusively by

CSS
495 A BUSSE ROAD ELK GROVE VILLAGE, IL 60007
APEX RESOURCES, INC.
129 SHERMAN STREET CAMBRIDGE, MA 02140

CIRCLE 081 ON READER SERVICE CARD

THE ATARI 520ST SYSTEM

ATARI SOFTWARE - 8 BIT
- Star Raiders II 15
- Atariwriter Plus 39
- Learning Phone 19
- Proofreader 14
- Silent Butler 19

ACCESS
- Leaderboard 26
- Tournament Disk 15

ACCOLADE
- Hardball 20
- Fight Night 20

ACTIVISION
- Music Studio 23
- Mindshadow 17
- On-Track Racing 17

BATTERIES INCLUDED
- Paperclip w/Spellpak 39
- Homepak 15

BRODERBUND
- Printshop 29
- Printshop Companion 26
- Printshop Graphics Library 1,2,3, (ea) 17

DATASOFT
- 221 Baker St. 20
- Mind Pursuit 20
- Alternate Reality 26
- Crosscheck 20
- Never Ending Story 20

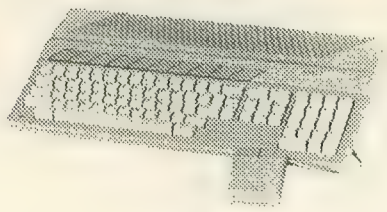
ELECTRONIC ARTS
- Racing Destruction Set 11
- Super Boulder Dash 11
- Chessmaster 2000 28
- Touchdown Football 28

MICROPROSE
- Conflict in Vietnam 26
- Silent Service 23
- F-15 Strike Eagle 23
- Kennedy Approach 23

OSS
- Action 49
- Action Tool Kit 19
- Basic XL 38
- Basic XL Tool Kit 19
- DOS XL 19
- Basic XE 49
- Mac 65 49
- Mac 65 Tool Kit 19

SYNAPSE
- Syn-File 33
- Syn-Calc 33
- Syn-Trend 28

X-LENT
- Typesetter 23
- Rubber Stamp 19
- Page Designer 19
- Megafront 17
- Word Processor 19
- P.S. Interface 19
- Miniature Golf Plus 19



MODEMS
- Atari XM-301 45
- Supra 300 AT 39
- Avatex (300/1200 Baud) 99
- Compuserve Starter 24
- Supra 300 ST 59
- Supra 1200 ST 149
- Haba 1200 114

ICD
- P:R: Connection 59
- US Doubler/Sparta DOS 49
- US Doubler without Sparta DOS 29
- R-Time 8 49
- Rambo XL 29
- Sparta DOS Construction Set 29
- Multi I/O Board (256K) 179

STAR MICRONICS
- NX-10 269
- SG-15 399
- LV-1210 189

PANASONIC PRINTERS
- KX-P 1080i 199
- KX-P 1091i 259
- KX-P 3131 259

PRINTER RIBBONS - CALL

PRINTER INTERFACE CABLES
- Microprint 29
- 1150 Parallel Int. 39
- Micro Stuffer 59

ATARI 520 ST SOFTWARE
- DB Master One 33
- DB Man 103
- Star Raiders 21
- Joust 21

ACCESS
- Leaderboard 26
- Tournament Disk 15

ACTIVISION
- Hacker 29
- Hacker II 33
- Music Studio 39

ARTWORX
- Bridge 4.0 19
- Compubridge 19
- Strip Poker 25
- Mailfist 13
- Peggammon 13
- Hole in One Golf 19

ANTIC
- Disk Doctor 23
- GST Assembler 45
- Maps and Legends 27
- Macro Assembler 60
- Meta Pascal 75
- Lattice C 114
- A-Calc 45
- Cad-3D 38
- A-Ram 15
- Expert Opinion 75
- Flash 30

OSS
- Personal Pascal 50

UNISON WORLD
- Printmaster 26
- Art Gallery I 19
- Art Gallery II 19

HIPPOPOTAMUS
- Computer Almanac 23
- Joke & Quotes 23
- Disk Utilities 33
- Ramdisk 23
- Hippospell 27
- Backgammon 27
- Hippoword 59
- Hippoconcept 59
- Hippopixel 27
- Hippovision B & W 109

MICHTRON
- Utilities 39
- M-Disk 26
- Mudpies 26
- Soft Spool 26
- Animator 26
- Calendar 19
- Mi-Term 33
- Cornerman 33
- Time Bandit 26
- Major Motion 26
- Cards 26
- Business Tools 33
- Pers. Money Mgr. 33
- BBS 2.0 54

BATTERIES INCLUDED
- I/S Talk 33
- Degas 26
- Timelink 33
- Thunder 26

XLENT
- Typesetter 25
- Rubber Stamp 25
- Music Box 32
- Megafont 25

SHANNER PRODUCTS
- LCM-2000 Clock 33
- Macro-Manager 49
- Shanner Planner 29
- Easel 14
- Disc Directory 20

OTHER
- Copy II 27
- Ultima III 39
- Winter Games 26
- Typing Tutor 23
- Silent Service 27

ATARI 520 ST HARDWARE: CALL

Package #1

Atari 520 ST Computer & SF 354 Disk Drive

Package #2

Atari 520 Computer, SF 354 Disk Drive and SM 124 Monochrome Montior

Package #3

Atari 520 ST Computer, SF 314 Disk Drive and SM 124 Monochrome Monitor

Package #4

Atari 520 ST Computer, SF 354 Disk Drive and SC 1224 Color Monitor

Package #5

Atari 520 ST Computer, SF 314 Disk Drive and SC 1224 Color Monitor

CALL FOR SOFTWARE: 520 ST Software

SST Systems	Mark of the Unicorn
Quickview	Infocom
Central Point	Activision
Audio Light	Academy
Haba	Dragon Group
Sierra	Mi-Graph
Quantum Micro	TDI
Philon	Electronic Arts
Epyz	Spinnaker
Firebird	SST
Pryority	Regent
Action	Quickview
Beckemeyer	Unicorn
Omnitrends	Penguin/Polarware
Telarium	Microware

COLORED DISKS AS LOW AS 9¢ EA. - FLOPPY DISKS AS LOW AS 39¢ EA.

5¼"	Black Generic Bulk	Colored Generic Bulk
BULK	SS/DD	SS/DD
20-69	**.49 ea.**	**.59 ea.**
70+	**.39 ea.**	**.49 ea.**

3½"	Sony	Sony
Bulk	SS/DD	DS/DD
10-29	**1.39 ea.**	**1.99 ea.**
30+	1.29 ea.	1.89 ea.

3½"	Sony	Sony
Box (5)	SS/DD	DS/DD
2-6	**9 Bx.**	**14 Bx.**
7+	**8 Bx.**	**13 Bx.**

To order call TOLL FREE
1-800-824-7506
ORDER LINE ONLY

No extra charge for MasterCard or Visa

COMPUTER CREATIONS, Inc.

P.O. BOX 493 - DAYTON, OHIO 45459

For information, order inquires, or for Ohio orders (513) 435-6868

VISA MasterCard

Order lines Open 9:00 a.m. to 8:00 p.m. Mon.-Fri.; 10 a.m. to 4:00 p.m. Sat. (Eastern Standard Time). Minimum $15 per order. C.O.D. (add $3.00). Please specify computer system. Call toll free number to verify prices and availability. Prices and availability are subject to change without notice. We ship C.O.D. to Continental U.S. addresses only! Please include 4% shipping on all Hardware orders (min. $4.00). Software and accessories add $3.00 shipping and handling in continental U.S. Actual freight will be charged outside U.S. to include Canada, Alaska, Hawaii, Puerto Rico and APO. Ohio residents add 6½% sales tax. Canadian orders add 5% shipping, (min. $5.00). All other foreign orders, please add 15% shipping, (min. $10). For immediate delivery send cashier's check, money order or direct bank transfers. Personal and company checks allow 3 weeks to clear. School purchase orders welcome. Due to our low prices, all sales are final. NO CREDITS. All defective returns must have a return authorization number. Please call (513) 435-6868 to obtain an RA# or your return will not be accepted for replacement or repair. FOR YOUR PROTECTION WE CHECK FOR CREDIT CARD FRAUD. We do not bill until we ship.

BATTERIES INCLUDED™

THE FOUR LETTER WORD WE KNOW YOU'LL LOVE...

FREE!*

Buy ANY Batteries Included Software Program & get another one FREE!

BUY ONE, GET ONE FREE!

It's that easy. Buy any of our products and choose another from the following list FREE!!!
HERE'S ALL YOU HAVE TO DO:

» Buy any Batteries Included product from your dealer between Nov. 1, 1986 and February 28th, 1987;
Mail us the following **four items** in an envelope:

1) This coupon indicating the free product you have selected;
2) $5.00 in check or money order to cover shipping and handling — make checks payable to Batteries Included. Do not send cash.
3) The dated receipt from your new BI Software purchase;
4) The completed warranty card from your purchased product

• Envelopes must be postmarked by February 28, 1987 to receive free products.
Sorry, there can be no product substitutions.
• Send the items listed above to:
Batteries Included,
Free Product Promotion
30 Mural St., Richmond Hill, Ontario Canada L4B 1B5
• This offer expires February 28, 1987.

THE PRODUCT I WANT IS:

System ——	C-64	Atari	Apple	IBM	Mac	ST
HomePak		☐	☐	☐	☐	
B/Graph		☐	☐			
TimeLink					☐	☐
I*S Talk				☐		☐
CalKit	☐					
Keys To Typing	☐					

Name _____
(Please Print)
Address _____
City _____ State/Prov. _____
Zip _____ Phone _____

Qualifying software purchase must be made by 2/28/87. This completed coupon, required proof of purchase, completed warranty card, and $5.00 must accompany your request. Only valid requests postmarked by 2/28/87 will be honored. No facsimiles or copies accepted. Batteries Included is not responsible for lost, misdirected or late mail. Please allow four to six weeks for delivery. Void where prohibited, taxed or restricted. Offer open to residents of U.S.A. and Canada only. Offer limited only to products listed. All taxes are the responsibility of the recipient. This offer is not redeemable at your store. Thanks for reading the small print.

CIRCLE 017 ON READER SERVICE CARD

Batteries Included Software has won many awards and has had many reviewers gushing with praise. Here's your chance to find out why — quickly, easily and *inexpensively*. Buy any BI software program and we'll give you another program for *free*. No strings. It's a real deal, for software you'll use right away — and every day.

CalKit

the award winning easy-to-use spreadsheet for the Commodore 64/128

I*S TALK

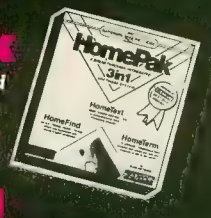
the total telecommunications program with spelling checker for the IBM and Atari ST

B/GRAPH

the professional charts, graphs and statistical analysis program for Apple and Atari computers

TimeLink

the time management, electronic diary and database program for the Macintosh and Atari ST



HomePak

3-in-1, telecommunications, word-processing and information manager software program for IBM, Macintosh and Apple computers

Keys To Typing

the electronic typing teacher for the Commodore 64/128

Offer expires February 28th, 1987. Quantities are limited—so act now!
* Free with purchase and $5.00 for postage and handling

START

THE ST QUARTERLY

PREMIERE ISSUE

See START Inside Offer Inside

Hurry Supplies Limited!

Summer 1986 Volume 1, Number 1

START NOW

Subscribe to STart, the ST Quarterly now. In addition to 4 issues of STart and four 3½" program disks, you will also receive—FREE—a full year (12 issues) of ANTIC which features the ST Resource every month. To subscribe use the handy order card to the right.

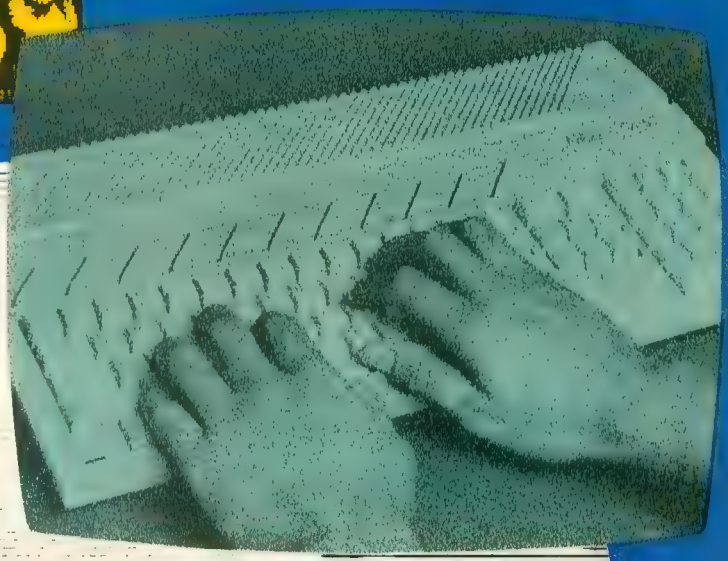
START AT THE BEGINNING

If you missed a previous issue, there are still copies available. For magazine plus 3½" disk, send $14.95 plus $2.00 shipping to:

STart
524 Second St.
San Francisco,
California 94107

THE ST RESOURCE

ANTIC FEBRUARY 1987



CONTENTS

1ST WORD PRINTER DRIVERS	69
PRINTSET	73
ST REVIEWS	78
ST NEW PRODUCTS	81

ST Disk Subscribers: For instructions on how to transfer **Antic** ST programs to 3½-inch disk, see ST Help File on Side B of monthly disk. ST programs from previous issues are available in 3½-inch format from The Catalog.

THE LOWEST PRICES | THE BEST SERVICE

ELECTRONIC ONE*

PHONE LINES OPEN 10-6 E.S.T. M-F

CALL (614) 864-9994 • P.O. Box 13428 • COLUMBUS, OHIO 43213

HARDWARE

ATARI 800XL	69.99
ATARI 65XE	69.99
ATARI 130XE	119.99
ATARI 1050 DISK DRIVE	124.99
ATARI 1025 PRINTER	139.99
ATARI 1027 PRINTER	99.99
ATARI 1020 PRINTER	99.99
ATARI XM801 PRINTER	179.99
ASTRA (THE ONE)	249.99

HARDWARE ACCESSORIES

SUPRA 1150 INTERFACE	39.99
XETEC INTERFACE	39.99
MICROPRINT	26.99
US DOUBLER	49.99
1030 MODEM	44.99
XM301 MODEM	37.99

PRINTERS

STAR NX10	239.99
STAR GEMINI II	239.99
EPSON LX86 (NEW)	229.99
PANASONIC 1092	319.99
PANASONIC KX3131	269.99
SEIKOSHA SP1000 VC	179.99
STAR SO 10	319.99
STAR SR 10	459.99
STAR 1210	189.99

MONITORS

SCOTT 13" TV-MONITOR	259.99
1902A RGB	
SAKATA 13" COLOR	149.99
SAMSUNG 14" COLOR	149.99
AMDEC COLOR 300	119.99

ATARI

8-BIT

ALL ON CARTRIDGE

PAC MAN	3.99
STAR RAIDERS	3.99
ASTEROIDS	6.99
DEFENDER	6.99
MUSIC COMPOSER	6.99
JUMP MAN JR.	6.99
E.T.	6.99
B.C. QUEST TIRES	6.99
BASIC CART	6.99
MISSILE COMMAND	6.99
DONKEY KONG	6.99
MEGAMANIA	6.99
SPACE INVADERS	6.99
ZENGI	6.99
RIVER RAID	8.99
BASKETBALL	8.99
PITFALL	8.99
PITFALL II	8.99
ROBOTRON	8.99
SKY WRITER	8.99
DIG DUG	9.99
POLE POSITION	9.99
GALAXIAN	9.99
MILLIPEDE	9.99
CENTIPEDE	9.99
FOOTBALL	12.99
FINAL LEGACY	12.99
RALLY SPEEDWAY	12.99
TENNIS	12.99
TRACK & FIELD	15.99

ATARI

8-BIT

ATARI WRITER	24.99
ATARI WRITER PLUS	29.99
PAPERCLIP	36.99
PROOF READER	15.99
VISICALC	15.99
PRINT SHOP	29.99
PRINT SHOP COMPANION	24.99
SYN FILE	29.99
SYN CALC	29.99
HOME PAK	15.99
ACTION	46.99
BASIC XL	36.99
BASIC XE	46.99
SAM	14.99
HOME FILER MANUAL	7.99
EAGLES	12.99
STAR FLEET I	29.99
COMPUTER BASEBALL	14.99
WORLD KARATE	19.99
STAR RAIDERS II	17.99
FORTRESS	12.99
GEMSTONE WARRIOR	12.99
LEADER BOARD	24.99
FLIGHT SIM II	29.99
SILENT SERVICE	24.99
TOP GUN	18.99
HARDBALL	22.99
FIGHT NIGHT	22.99
ULTIMA IV	37.99

ATARI

ATARI S.T.

COLOR SYSTEM	768.00
B/W SYSTEM	568.00
ATARI 20 MEG HARD DRIVE	718.00
SUPRA 30 MEG HARD DRIVE	788.00

SOFTWARE

LEADER BOARD	24.99
MEAN 18	24.99
SILENT SERVICE	24.99
WINTER GAMES	24.99
PERSONAL PASCAL	49.99
DB MAN	99.99
VIP	99.99
EASY DRAW	99.99
DEGAS	24.99
PRINT MASTER	26.99
WORD WRITER	49.99
DATA MANAGER	49.99
SWIFT CALC	49.99
STAR FLEET I	32.99
DAC EASY	49.99
JOUST	19.99
ULTIMA III	39.99
COPY II	26.99
TIMEKEEPER	34.99

DISKETTES — SALE — 10 PACK

SONY S/S D/D	6.99	5¼"
SONY D/S D/D	8.99	5¼"
MAXELL S/S D/D	7.99	5¼"
MAXELL D/S D/D	9.99	5¼"
NASADA D/S D/D	7.99	5¼"
3M S/S D/D	10.99	5¼"
PRECISION D/S D/D	7.99	5¼"
BONUS D/S D/D	7.99	5¼"
ELEPHANT S/S D/D	7.99	5¼"
ELEPHANT D/S D/D	8.99	5¼"
GENERIC S/S D/S	13.99	3½"
VERBATUM S/S D/D	13.99	3½"
MAXELL S/S D/D	15.99	3½"
SONY D/S D/D	19.99	3½"
CENTECK (COLOR) S/S D/D	19.99	3½"

VIDEO GAMES

ATARI 2600 GAME SYSTEM	39.99
ATARI 7800 GAME SYSTEM	79.99
INTELLIVISION (REFURBISH)	19.99
NINTENDO	119.99
SEGA	89.99

CALL FOR COMPLETE CATALOG FOR ALL GAME SYSTEMS

JOYSTICKS

ATARI	6.99
QUICK SHOT 1	5.99
QUICK SHOT 2	7.99
QUICK SHOT 4	9.99
GEM STICK	6.99
UNITE	5.99
EPYX 500XJ	13.99
BOSS	11.99
BAT	16.99

RIBBONS

NX10	7.99
SEIKOSHA	8.99
SG10	2.99
SG10 (COLOR)	3.99
1525	7.99
801	7.99
1526	7.99
LX80	7.99
PANASONIC	7.99
PRO WRITER	6.99

ATARI 2600 VIDEO GAMES

COMBAT	3.99	REAL SPORT BASEBALL	3.99	POPEYE	7.99
FANTASTIC VOYAGE	3.99	OINK	5.99	MOON PATROL	9.99
SHOOTING GALLERY	3.99	OUTLAW	5.99	MARIO BROS.	9.99
STAR VOYAGER	3.99	CHALLENGE FOOTBALL	5.99	CENTIPEDE	9.99
DRAGON FIRE	3.99	CHALLENGE BASEBALL	5.99	MILLIPEDE	9.99
FOOTBALL	3.99	MASH	7.99	STARGATE	9.99
ASTEROIDS	3.99	Q-BERT	7.99	POLE POSITION	9.99
VENTURE	4.99	FUN W/NUMBERS	7.99	MS. PAC MAN	9.99
FANTASTIC VOYAGE	4.99	AIR RAIDERS	7.99	PAC MAN	9.99
PLAGUE ATTACK	4.99	BACHELOR PARTY	9.99	BATTLE ZONE	9.99
SOLOR FOX	5.99	BEAT EM & EAT EM	9.99	TAZ	9.99

ATARI 2600 39.99 ALWAYS 50 TITLES IN STOCK	ATARI 7800 69.99 CALL FOR TITLES	ATARI 5200 CALL COLECOVISION WRITE	NINTENDO W/ROBOT 119.99 CALL FOR CARTS	SEGA W/O ROBOT 79.99 SEGA W/ROBOT 119.99	INTELLIVISION 3 59.99 INTELLIVISION 2 (REFURBISH) 19.99

VIDEO GAMES

LARGE SELECTION OF GAME CARTS FOR ALL SYSTEMS ABOVE

CALL FOR COMPLETE CATALOG

HOW TO ORDER: CASHIER CHECK, MONEY ORDER, MASTERCARD* OR VISA* (ADD 4% FOR CHARGE CARDS) . . . NO PERSONAL CHECKS . . . NO C.O.D.'S . . . SHIPPED U.P.S. . . . ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
SHIPPING: ADD $3.00 ON ALL ORDERS UNDER $100.00 . . . ADD $5.00 ON ALL ORDERS OVER $100.00. ACTUAL FREIGHT CHARGED ON MULTIPLE ORDERS.
INTERNATIONAL: ACTUAL FREIGHT CHARGED ON ALL ORDERS OUTSIDE THE CONTINENTAL UNITED STATES INCLUDING A.P.O.
POLICIES: NO RETURNS WITHOUT A RETURN AUTHORIZATION . . . NO RETURNS UNLESS DEFECTIVE. ALL DEFECTIVES WILL BE EXCHANGED . . . NO EXCEPTIONS. PLEASE SPECIFY . . .

CALL OR WRITE FOR FREE CATALOG

CALL ELECTRONIC ONE (614) 864-9994 **P.O. BOX 13428 COLUMBUS, OHIO 43213**

CIRCLE 028 ON READER SERVICE CARD

BY PATRICK BASS, ANTIC ST PROGRAM EDITOR

1ST WORD PRINTER DRIVERS

How to make them

As more and more ST workstations show up at **Antic's** office, I've been called upon to make 1st Word printer drivers for a number of different brands of printers. It's really not hard—if you have created printer drivers for word processing software before and are familiar with control codes expressed in hexadecimal numbers.

But just in case you don't meet all the above qualifications, the following article will teach you how to build your own printer drivers for the 1st Word software that's currently packaged with every ST. For a sample printer, we chose the Gemini 10X—which ranked first in popularity with Atari owners in **Antic's** February, 1986 survey.

Why does 1st Word need printer drivers? Well, different printers often need different instructions to get the same job done. For example, to switch on **boldface**, Printer A might want an escape character followed by the letter E. But Printer B wants an escape character followed by a Z. Printer C wants another character sequence, and so on. So what can we do about this Printing Tower of Babel?

EPSON SALTS

Epson did a lot to cure the communications gap by introducing a printer that everybody wanted to copy. As a result, many well-known printers—including the Gemini 10X— are "Epson-compatible." This means they *should* respond to the same control codes that Epson printers respond to. However, the harsh reality is that most of these compatible printers are only 80-90% Epson compatible. You usually won't notice any difference. But eventually you'll run into character styles which won't print correctly no matter how hard you try. This is the time to create your own 1st Word printer driver.

1st Word will take your editing commands like "start boldface" and save them along with your document. When it comes time to print the file, and 1st Word runs across an embedded command, the word processor will consult its Printer Configuration File (printer driver) to determine which *control character sequence* to issue for that particular command.

To create a printer driver for 1st Word, you'll need the manual that came with your printer and several special files from your 1st Word disk. From your 1st Word PRINTER folder, you'll need INSTALL.PRG, which actually creates the finished configuration file, and ASCII.HEX, which is where you answer the prompts to customize your printer driver. INSTALL.PRG will accept a .HEX file and put out a .DOT file.

BUILDING DRIVERS

Double-click on 1st Word. When the file selector box appears, click on the ASCII.HEX file from the PRINTER folder. When the file loads, you'll see the Teletype Printer Driver header. Don't worry, we're about to fix that. You may change or delete the header message if you desire. Everything on a line *after* an asterisk in the printer configuration file is ignored, like REMarks in BASIC.

The first line you'll come to which doesn't have an asterisk on it is: NAME OF PRINTER. Type in GEMINI 10X and press [RETURN].

Next we find a block of text titled MISCELLANEOUS CONFIGURABLE VARIABLES. A row of six zeros is beneath the title. The first selection determines the type of printer used. If it is a zero, 1st Word assumes that a dot-matrix printer is connected and ignores the next five numbers. Since the Gemini 10X *is* a dot-matrix printer, we leave all six zero entries as they are.

Now we come to where you'll need your printer manual. Below the Configurable Variables, we find PRINTER CHARACTERISTICS, which is the section we actually need to change. Let's compare the top two lines of *Figure 1* to see how they differ.

continued on next page

```
000 = $00   032 = $20   064 = $40   096 = $60   128 = $80   160 = $A0   192 = $C0   224 = $E0
001 = $01   033 = $21   065 = $41   097 = $61   129 = $81   161 = $A1   193 = $C1   225 = $E1
002 = $02   034 = $22   066 = $42   098 = $62   130 = $82   162 = $A2   194 = $C2   226 = $E2
003 = $03   035 = $23   067 = $43   099 = $63   131 = $83   163 = $A3   195 = $C3   227 = $E3
004 = $04   036 = $24   068 = $44   100 = $64   132 = $84   164 = $A4   196 = $C4   228 = $E4
005 = $05   037 = $25   069 = $45   101 = $65   133 = $85   165 = $A5   197 = $C5   229 = $E5
006 = $06   038 = $26   070 = $46   102 = $66   134 = $86   166 = $A6   198 = $C6   230 = $E6
007 = $07   039 = $27   071 = $47   103 = $67   135 = $87   167 = $A7   199 = $C7   231 = $E7
008 = $08   040 = $28   072 = $48   104 = $68   136 = $88   168 = $A8   200 = $C8   232 = $E8
009 = $09   041 = $29   073 = $49   105 = $69   137 = $89   169 = $A9   201 = $C9   233 = $E9
010 = $0A   042 = $2A   074 = $4A   106 = $6A   138 = $8A   170 = $AA   202 = $CA   234 = $EA
011 = $0B   043 = $2B   075 = $4B   107 = $6B   139 = $8B   171 = $AB   203 = $CB   235 = $EB
012 = $0C   044 = $2C   076 = $4C   108 = $6C   140 = $8C   172 = $AC   204 = $CC   236 = $EC
013 = $0D   045 = $2D   077 = $4D   109 = $6D   141 = $8D   173 = $AD   205 = $CD   237 = $ED
014 = $0E   046 = $2E   078 = $4E   110 = $6E   142 = $8E   174 = $AE   206 = $CE   238 = $EE
015 = $0F   047 = $2F   079 = $4F   111 = $6F   143 = $8F   175 = $AF   207 = $CF   239 = $EF
016 = $10   048 = $30   080 = $50   112 = $70   144 = $90   176 = $B0   208 = $D0   240 = $F0
017 = $11   049 = $31   081 = $51   113 = $71   145 = $91   177 = $B1   209 = $D1   241 = $F1
018 = $12   050 = $32   082 = $52   114 = $72   146 = $92   178 = $B2   210 = $D2   242 = $F2
019 = $13   051 = $33   083 = $53   115 = $73   147 = $93   179 = $B3   211 = $D3   243 = $F3
020 = $14   052 = $34   084 = $54   116 = $74   148 = $94   180 = $B4   212 = $D4   244 = $F4
021 = $15   053 = $35   085 = $55   117 = $75   149 = $95   181 = $B5   213 = $D5   245 = $F5
022 = $16   054 = $36   086 = $56   118 = $76   150 = $96   182 = $B6   214 = $D6   246 = $F6
023 = $17   055 = $37   087 = $57   119 = $77   151 = $97   183 = $B7   215 = $D7   247 = $F7
024 = $18   056 = $38   088 = $58   120 = $78   152 = $98   184 = $B8   216 = $D8   248 = $F8
025 = $19   057 = $39   089 = $59   121 = $79   153 = $99   185 = $B9   217 = $D9   249 = $F9
026 = $1A   058 = $3A   090 = $5A   122 = $7A   154 = $9A   186 = $BA   218 = $DA   250 = $FA
027 = $1B   059 = $3B   091 = $5B   123 = $7B   155 = $9B   187 = $BB   219 = $DB   251 = $FB
028 = $1C   060 = $3C   092 = $5C   124 = $7C   156 = $9C   188 = $BC   220 = $DC   252 = $FC
029 = $1D   061 = $3D   093 = $5D   125 = $7D   157 = $9D   189 = $BD   221 = $DD   253 = $FD
030 = $1E   062 = $3E   094 = $5E   126 = $7E   158 = $9E   190 = $BE   222 = $DE   254 = $FE
031 = $1F   063 = $3F   095 = $5F   127 = $7F   159 = $9F   191 = $BF   223 = $DF   255 = $FF
```

Figure 2 Decimal to hexadecimal number conversion chart

```
ALICE IN WONDERLAND

"Oh, don't bother me ," said the Duchess; I never could abide
figures!"  And with that she began nursing her child again,
singing a sort of lullaby to it as she did so, and giving it a
violent shake at the end of every line:

   "Speak roughly to your little boy,
      And beat him when he sneezes
   He only does it to annoy,
      Because he knows it teases."

                    CHORUS
(In which the cook and the baby joined):
        " Wow !   Wow !   Wow ! "
```

Figure 3 Sample printout using Gemini 10X configuration file.

```
* 0                          * Character width
1, D, A                      * Linefeed WITH return
* 2                          * Forward print
* 3                          * Reverse print
* 4                          * Vertical tab to line
* 5                          * Absolute horizontal tab
6, 1B, 45                    * Draft bold on
7, 1B, 46                    * Draft bold off
8, 1B, 47                    * Near Letter Quality (NLQ)
                               bold on
9, 1B, 48                    * NLQ bold off
A, 1B, 34                    * Draft italic on
B, 1B, 35                    * Draft italic off
C, 1B, 34, 1B, 47            * NLQ italic on
D, 1B, 48, 1B, 35            * NLQ italic off
* E                          * Draft light on
* F                          * Draft light off
10, 1B, 46                   * NLQ light on
11, 1B, 45                   * NLQ light off
12, 1B, 53, 0                * Draft superscript on
13, 1B, 54                   * Draft superscript off
14, 1B, 47, 1B, 53, 0        * NLQ superscript on
15, 1B, 54, 1B, 47           * NLQ superscript off
16, 1B, 53, 1                * Draft subscript on
17, 1B, 54                   * Draft subscript off
18, 1B, 47, 1B, 53, 1        * NLQ subscript on
19, 1B, 54, 1B, 47           * NLQ subscript off
1A, 1B, 2D, 1                * Draft underline on
1B, 1B, 2D, 0                * Draft underline off
1C, 1B, 2D, 1                * NLQ underline on
1D, 1B, 2D, 0                * NLQ underline off
1E, C                        * Formfeed
1F, 12                       * Horizontal initialisation
* 20                         * Vertical initialisation
21, 1B, 40                   * Termination: printer reset
0                            * NULL termination byte
```

Figure 1 1st Word configuration file for Gemini 10X printer.

The top line has an asterisk, a zero, a few spaces, another asterisk and the words Character Width. The first asterisk tells us this line is a comment and is not active. Next, the zero is the number of the control code—in *hexadecimal*— recognized by 1st Word. The final words describe what control code this line contains. This line is not active because 1st Word has no control code zero.

The next line down *is* a recognized control code, so it doesn't start with an asterisk. It starts with control code one (1), followed by the ASCII codes—in hexadecimal—for Carriage Return ($0D) and Linefeed ($0A), separated by commas. This means every time 1st Word runs across its internal command one, it will output not a number 1, but a carriage return and line feed character.

INSTALLATION

Figure 1 shows the finished Gemini 10X configuration file. The Near Letter Quality (NLQ) control sequences here refer to double-strike printing. If you own a Gemini 10X printer, you could use this file simply by changing the lines

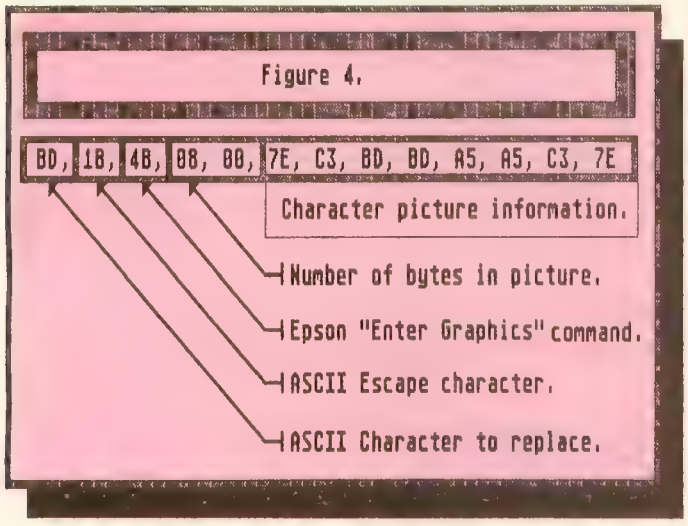
in your ASCII.HEX file to match the example. When you finish typing the corrections, SAVE your finished file to disk as GEMINI10.HEX.

Locate and double-click on INSTALL.PRG, which will power-up asking for the .HEX file to install. Double-click on GEMINI10.HEX and sit back. In 30 seconds or less, INSTALL.PRG will finish and you should find GEMINI10.DOT on your desktop. Rename GEMINI10.DOT as 1st_PRNT .DOT and copy it to your 1st Word disk for automatic loading along with the rest of the program.

EXTRA HELP

To build a driver for your own printer, follow the general process described above—but answer 1st Word's prompts with the appropriate control codes given in your own printer manual.

Figure 2 is a Decimal To Hexadecimal Conversion Chart. It will help you find the proper hex numbers to insert in your own printer drivers. The extra zeros and dollar signs



are simply programming conventions. For example, the entry 042 = $2A just means that decimal number 42 is 2A in hexadecimal.

If you have access to CompuServe, there are many different configuration .HEX files all ready for downloading from the DL (Data Library) section of ATARI16. Just type GO ATARI16 when you log onto CompuServe, and then BROwse DL0, DL3, and DL5.

TRANSLATION TABLE

The second half of the 1st Word printer driver file is called the Translation Table. Although we don't *need* to edit this section to create our Gemini 10X printer driver, let's explore what it controls.

To do this, I'll demonstrate how to convince the Gemini 10X to print the Copyright, Registered and Trademark symbols.

First, we need to make it clear exactly where the two different sections of the printer driver come into action. Let's follow what happens when 1st Word attempts to print a file.

FIRST HALF

Each time 1st Word gets another character from the file to print, it first tries to determine if the character is an embedded command for style or format. These characters normally do *not* show up onscreen, but rather they control the displayed onscreen characters in special typefaces such as boldface or italics.

1st Word starts by comparing the character to the entries in the top half of the printer driver. If the character is indeed a command, the command itself is *not* issued to the printer. Instead, the sequence of bytes in the printer driver table that *follow* the command character are issued to the printer.

This is the section of the printer driver where we typed in the commands teaching the Gemini 10X how to boldface or underline.

SECOND HALF

Just before 1st Word attempts to output a character to the printer, it scans the bottom half of the printer driver (the Translation Table) for a match. If no match is found, the character is transferred unmolested to the printer.

However, if 1st Word *does* find a match, the character in question is not issued. Instead, the byte sequence which follows the character byte in the Translation Table is issued to the printer.

In short, the top half of the printer driver file filters characters going between the file and 1st Word, while the bottom half filters characters between 1st Word and the Printer.

Figure 4 is a DEGAS diagram showing what each element does in a sample line at the bottom half of your printer driver. In this case, the line will create the Copyright symbol.

What we need to do here is interesting. Since the Gemini 10X doesn't have the Copyright, Registered and Trademark Symbols burned into its character ROM, we'll teach the Gemini 10X to slip into graphics mode and *draw* a picture of the needed characters whenever we output them.

Keep in mind that all numbers in the printer driver file are *hexadecimal.* In *Figure 4*, we see that the first number on a line must belong to the character we wish to translate. The Copyright symbol is Atari ST character number $BD, so the first number on the line is $BD. When 1st Word finds this number, it knows that character $BD must be translated and starts outputting the rest of the bytes on the line.

The second number in the line is an ASCII [ESCAPE] character ($1B) which informs the Gemini 10X that a command follows. The third number in the line ($4B) is the command that Epson printers use to enter graphics mode.

At this point, the printer will want to know how many bytes of picture information to expect to recieve. Consequently, the next two bytes into the translation table are $08, $00, which tells the printer to expect (8+(0*256)) bytes of picture information. The last eight bytes on the line are the image of the character itself, copied from the character set located in TOS ROM. continued on next page

CIRCLE 032 ON READER SERVICE CARD

FIGURE 5
Translation Table

```
BD,1B,4B,08,00,7E,C3,BD,BD,A5,A5,C3,7E
BE,1B,4B,08,00,7E,C3,BD,A9,AD,B5,C3,7E
BF,1B,4B,08,00,80,F8,F8,8F,1C,0F,1C,0F
00
```

WHAT YOU NEED

Figure 5 is a listing of the Translation Table needed to get your Gemini 10X to print the three symbols we've been discussing. The first line controls the Copyright symbol, the second delivers the Registered symbol and the third is the Trademark symbol. The last line consists of a double zero, which should be kept. The table *must* be zero-terminated.

To get these characters to print, create your printer driver according to instructions given earlier in this article. But this time, include the four lines of our Translation Table (*Figure 5*). Install the new printer driver in the same directory where you have 1st Word.

To actually type in the Copyright, Registered, and Trademark symbols, simply point at them inside the desktop special characters box with the mouse and click the left mouse button. The characters will be inserted at the cursor.

To find out the number and location of any other character you wish to reconfigure, there is an excellent table of character shapes located on page 208 of your *Atari ST BASIC Handbook.*

CUSTOMIZE *Your ST with Terrific Peripherals*
No Soldering Required!

terrific™ PERIPHERALS

17 St. Mary's Court
Brookline, MA 02146
(617) 232-2317

Z-Time Internal Clock/Calendar Upgrade

Z-Time, the chip sized internal clock/calender upgrade for your Atari ST. Simply open your 520ST, remove one of the chips on the motherboard and piggy back it on to the **Z-Time** clock/calendar. Doesn't use up your cartridge slot. A ten minute installation gives you time and date every time you boot up with the security of a 5 year lithium battery back-up.

Each **Z-Time** upgrade kit also includes useful system and utility software.

$49.95 520ST $59.95 1040ST

EZRAM™ 520

The 512K Memory Upgrade for the Atari 520ST
Featuring the **PUSH**-Temp Installation System

No soldering required

Free Software
6 Month Warranty
Suggested List: $199.00

GATEWAY A Programmable I/O Device

Gateway, the high speed 23 channel programmable Input/Output device. It can directly access the computing power of the ST, allowing computer management of process control, laboratory and other external equipment and procedures. Gateway comes with a 7 function on board clock calendar.

- 23 I/O lines programmable as Input or Output in groups of 8 bit parts. Each port can be bit programmed as input or output to provide bi-directional handshaking.
- Available with a 26 pin ribbon cable connector. The PC Board carries all 40 connections for full access allowing additional physical interfacing.
- Plugs into the ST cartridge slot. Encased in anodized aluminum cartridge case for efficient heat dissipation and EMR shielding.
- Gateway comes with I/O port configuration and monitoring software for creation of custom applications.

Suggested List: $149.95

Ask for Terrific Corp. products at you local dealer or order directly from Terrific Corp.

VISA/MC/COD Add $3.50 for shipping.

EZRAM520 , **PUSH**-Temp, **Z-Time, and GATEWAY** are trademarks of Terrific Corp. Atari and Atari 520ST are registered trademarks of Atari Corp.

CIRCLE 063 ON READER SERVICE CARD

BY BRAD ROBILLARD

PRINTSET

Automatic printer control codes

PrintSet is a short utility routine that automatically sends control codes to a printer when you turn your ST on. You can select compressed mode, no linefeeds, bold, italics... whatever you like. In fact, you can send any number of codes at once.

Simply edit PrintSet's assembly language source code to include the control codes you need, then reassemble. This will produce an executable program that automatically sets up a printer to your specifications.

You'll need to edit the last line in the source code. It has the label **pcodes**. Currently, this line contains the Epson printer codes to reset a printer. The format of the line is [n,n,...n,0], where *n* is a decimal control code. Notice the list *must* end with a zero. In our example line, the number 27 is the [ESCAPE] character, the number 64 is the [@] symbol (which means "reset" to Epson printers) and the list ends with a zero.

TYPING IT IN

Listing 1, PSET.S, is written in 68000 assembly language, and can be implemented using any assembler which runs on the ST—including C language assemblers. Carefully type in the program and SAVE a copy to disk. The procedure to properly assemble the program is somewhat different for different assemblers. So we will describe what is needed using AS68.PRG, the 68000 assembler included with the Atari ST Developers Kit.

On your disk, you'll need the following 10 programs:

1. AS68 .PRG
2. AS68SYMB.DAT
3. BATCH .TTP
4. LINK68 .PRG
5. OSBIND .O
6. RELMOD .O
7. RM .PRG
8. WAIT .PRG
9. ASM .BAT
10. PSET .S

The top eight programs are part of the Atari ST Developers Kit. And you just typed in number 10, PSET.S. But where does ASM.BAT, number 9, come from?

You'll need to create your own ASM.BAT batch file, but don't worry, it's quite short. The file consists of the following lines of code:

```
as68 -l -u %1.s
link68[ u,s ] %1.68k=%1,osbind
rm %1.o
relmod %1.68k %1.prg
rm %1.68k
wait
```

Note that the -l in the first line is a lower-case letter l—all other similar-looking characters are number ones. When finished, save the above file to disk as ASM.BAT. This is the file which will instruct the BATCH program how to assemble and link the PSET program together.

With all the needed files on one disk, preferably a RAMdisk, double-click on BATCH.TTP. In the resulting dialog box, type in ASM PSET without the .s extender. AS68 will assemble and LINK68 will link your resulting .o file together with OSBIND.O to create a finished .PRG program. When finished, you'll find PSET.PRG on your desktop. This is your PrintSet program.

HOW IT WORKS

The top four lines of Listing 1 and any line starting with an asterisk [*] are comments. This program has a very short equates section with just three lines. The program really begins at the label **start**, and begins by calculating the final address of where we keep the printer control codes, then placing that address into address register zero (a0). This creates a *pointer* to the list of control codes to send.

Next, at **continue** we check to see if the end of the list of control codes

continued on next page

has been reached. The list ends with a zero, so we test the byte that a0 is pointing to. If the byte isn't a zero, we haven't reached the end yet, so we don't take the branch to **done**. Otherwise we place the character we're pointing at onto the stack and point to the next available character. Then we place the device number of the destination device on the stack, in this case the number of the printer, and jump into GEMDOS which will output the character we passed into it over to the device we selected.

Select compressed mode, no linefeeds, bold, italics . . . whatever you like

If any errors occurred while we output the character, the negative error number is placed in register d0 and returned. When we do return from GEMDOS we need to add four bytes to the stack, because we pushed four bytes before we called it. Then we check for errors by testing the number inside register d0. If no errors occurred, the value in d0 is zero and we branch back up to continue getting the next character in line.

On printer error, or when we've reached the end of the line to output, we end up at **done**, which will exit this application and return to the desktop by placing the exit application opcode on the stack and jumping into GEMDOS. If it works properly, we should never return from this call, but just in case we do, we clean up the stack and return to the main program.

The last thing in the file is **pcodes**, where we keep the list of characters to actually output to the printer. Notice this demonstration code only sends the standard Epson reset command. You may place any amount of printer initialization codes here. Just make sure the list ends with a zero.

AUTO FOLDERS

If you change your printer's attributes on a regular basis, you might find it handy to place the PrintSet program in an AUTO folder. That way, every time you boot up your ST, PrintSet will be run automatically. Please note that in this case, the program must be installed as a GEM application (.prg extension). To set up the AUTO folder, create a new folder on your bootup disk called AUTO and copy the PrintSet program to the folder. Only programs which make no calls to GEM may be run from within an AUTO folder.

Brad Robillard is a student at the University of Western Ontario. He is working towards dual degrees in music theory and computer science.

Listing on page 109

ProCopy ST BACKUP UTILITY

You can't backup your software because copy protection locks you out. **ProCopy** is the key!

- Protects against the accidental loss of expensive software
- Works with all Atari STs
- Copies both S/S & D/S disks
- Use with 1 or 2 disk drives
- Not copy protected
- **FREE** shipping and handling
- **TOLL-FREE** telephone number
- Updates are only $12 with return
- Orders shipped same day
- Disk analyze function included

Dealer Inquiries Welcome

VISA MasterCard and C.O.D. orders

$34.95

Call (800) 843-1223

Send check for $34.95 (overseas add $2.00 for air mail) to:

PROCO PRODUCTS
P.O. BOX 665, CHEPACHET, RHODE ISLAND 02814 USA
(401) 568-8459

Available Internationally In Europe and Australasia

THE MOVING FINGER CO.
Building 2
Shamrock Quay
Southampton, SO1-1QL
England
Tel. 0703-227274

TECH-SOFT COMPUTER WHOLESALE
324 Stirling Highway
Claremont
Western Australia 6010
Tel. 09-385-1885

CIRCLE 070 ON READER SERVICE CARD

STAccounts™ Integrated Accounting Package

For Atari ST Computers

No more spending thousands of dollars on an accounting package! For the price of some accounting packages alone, you can now purchase a full computer system that will satisfy your accounting needs and more. WHY!?
- STAccounts is fast, powerful, easy to use, and affordable. Fully integrated A/R, A/P, I/C, and G/L.
- All printed output/reports can be altered, amended, or entirely reconfigured to your specific needs utilizing the Report Generator.
- Easy as a click of a mouse you can change from one module to another.
- STAccounts is written totally within Digital Research "GEM" operating system, fully utilizing the Graphics and Mouse capabilities of the Atari ST Personal Computer.

The combination of the STAccounts and the Atari ST Personal Computer will provide you with the solution to all your needs at an affordable price.

VISIT YOUR ATARI DEALER TODAY AND FIND OUT FOR YOURSELF.

PARTIAL LIST OF FEATURES

Accounts Receivable (A/R) - Integrated with A/P, G/L & I/C
* Account numbers and/or names * Customers' names and addresses * Invoicing/statements * Credit limit * 10 tax rates * Immediate account access * Backorders. REPORTS include Sales Turnover, Aged Receivables, Customer Statements and much more.

Accounts Payable (A/P) - Integrated with A/R, G/L and I/C.
* Account numbers and/or names * Suppliers' names & addresses * Remittance advices/statements * Immediate account access * Credit limits. REPORTS include Purchase Turnover, Aged Payables, an Supplier Mailing List.

Inventory Control (I/C) - Integrated with A/R, A/P and G/L.
* 10 product groups * Turnover by quantity and value * Alpha supported item lists * Inventory linked to A/P * Editing of invoice information. REPORTS include Inventory Turnover, Price Lists, Inventory Re-order list, and Stock Report.

General Ledger (G/L) - Integrated with A/R, A/P, and I/C.
*256 G/L Accounts * Immediate account access * Account details including budgets * Variance percentages for budget against actuals. G/L REPORTS include Profit and Loss Statement, Trial Balance, Balance Sheet and statement of accounts.

Help
STAccount provides you with on screen help through the use of TEDDY, a screen icon. If you become uncertain of your actions during the course of running the program, just click the left mouse button on TEDDY and a help screen for that particular section of the system will appear.

Report Generator
STAccounts Report Generator is a powerful tool integrated into the system. It will allow you to reconfigure reports using any of the system information. Provided with the system are a number of default reports which can be altered, amended, or entirely reconfigured for your individual company's needs, or create new reports as to your company requirements.

SYSTEM CONFIGURATION

STAccounts is designed to be used with either a 520 ST or 1040 ST, 0.5 or 1.0 megabyte drive with monochrome or colour monitor

STAccounts and TEDDY are trademarks of Silicon Chip Limited
Atari ST is a trademark of Atari Corporation Gem is a trademark of Digital Research
In Europe, STAccounts is available from Silicon Chip Ltd. 82 London Rd Kingston, Surrey, England
Fax # 01-541 6398, Telephone 01 549-6557

TO ORDER AND FOR MORE INFORMATION CALL

1-416-479-1880

U.S. ORDERS SHIPPED FROM U.S.
NON U.S. ORDERS SHIPPED FROM CANADA

ISD MARKETING INC.
20 Steelcase Road, Unit 12
Markham, Ontario, Canada L3R 1B3

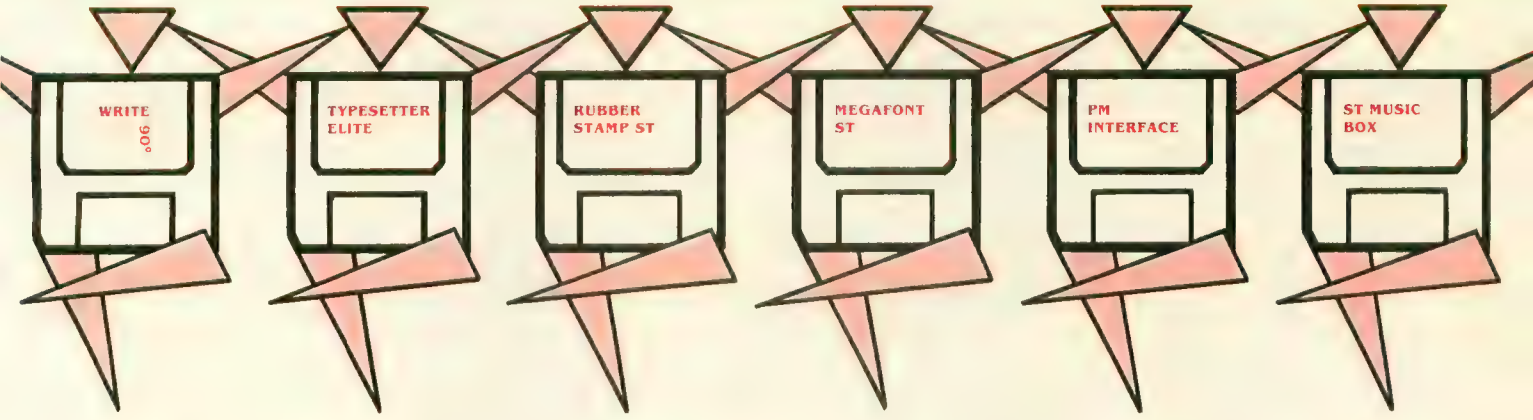
Send in this coupon with your credit card number, money order or check for U.S. $249.99
In Ontario add 7% sales tax
No C.O.D.

☐ CHECK ☐ MONEY ORDER
☐ AMEX ☐ VISA ☐ MASTERCARD Expires _____
Account No _____
Name _____
Company Name _____
Address _____
City _____ State _____ Zip _____
Phone _____
Signature _____

STAccounts

CIRCLE 033 ON READER SERVICE CARD

The Atari ST Software Line Up



WRITE 90°
$29.95 This package turns spreadsheets, text and screen output on their ear by allowing vertical formatted files to be printed sideways using continuous or single sheet paper. Incredibly useful for those over sized spreadsheets or flow chart style programs. Five character sizes are available. WRITE 90° is GEM based and supports Epson FX, SMM804, NEC, PROWRITER and compatible printers.

TYPESETTER ELITE
$49.95 is a GEM based desk top publishing package that integrates text, graphics and DEGAS like drawing tools and allows for a full lay-out page preview and a what-you-see-is-what-you-get print out. TYPESETTER ELITE can handle custom fonts and icons; and ASCII files can be loaded into TYPESETTER ELITE pages. You'll be impressed with the high resolution and clarity of your printer output when it is driven by TYPESETTER ELITE.

RUBBER STAMP ST
$39.95 A utility that lets a user manipulate pictures from DEGAS and other popular graphics programs. RUBBER STAMP ST is useful for creating icons and printing out repititious full screen pictures, graphic address labels, index, Rolodex or other card sized output. RUBBER STAMP ST can add text to pictures in multiple sizes and styles and can load in fonts from DEGAS and MEGAFONT ST.

MEGAFONT ST
$39.95 Soup-up your printer output by designing your own fonts with GEM based MEGAFONT ST. Mix font styles to indicate italics or to provide emphasis. Arrange, space, position and size text and graphics in a document with MEGAFONT ST's click through "GEM" menus. MEGAFONT ST embeds graphics, text and fonts in the same file. Compatible with DEGAS, NeoChrome and the XLEnt Line Up of ST software, MEGAFONT ST also has a built in font editor. MEGAFONT supports SMM804, NEC, PROWRITER and EPSON compatible printers.

PM INTERFACE
$29.95 is a GEM based driver that will enhance the utility of Print Master. PM INTERFACE allows Print Master to be integrated with DEGAS and the XLEnt Line Up of ST Software. You can use PM INTERFACE to create new Print Master graphics and borders using stored portions of DEGAS and other picture files. PM INTERFACE converts Print Master graphics into icons that can be manipulated by the XLEnt ST software utility Line Up.

ST MUSIC BOX
$49.95 A MIDI utility that lends graphics support and other administrative tweaking support to your composing. Allows for changing key and time signatures, inserts, deletes and copies measures. Prints high quality sheet music with the option of lyric and graphic notation. Compatible with an ST console or a MIDI synthesizer. ST MUSIC BOX is another MIDI progression from the authors of the Abacus book, Introduction to MIDI Programing for the Atari ST.

P.O.Box 5228
Springfield, Virginia 22150
(703) 644-8881
Order Number
(703) 569-8881
Customer Service
TELEX 269728 XLENT UR

XLENT Software

XLENT Software [U.K.] LTD
516 Alum Rock Road
Alum Rock
Birmingham B8 3HX
United Kingdom
(021) 327-6110
TELEX 265871 (MON REF Q)

CIRCLE 065 ON READER SERVICE CARD

SUPER VALUES

SALE

COMPUTER DIRECT

SAVE

A DIVISION OF PROTECTO ENTERPRIZES

SINGLE SIDED/DOUBLE DENSITY DISKS

.29 ea.

100% Certified 5¼" floppy disks. **Lifetime Warranty**, automatic lint cleaning liner included. 1 Box of 100 $29.00 List $1.99 ea. **SALE $.29 ea.**

ATARI WRITER WORD PROCESSOR

SALE $ 49.95 List $99

Write papers, reports, schoolwork, ect. quickly and efficiently with the No. 1 Atari word processor with spelling checker. Make changes with preview modes. Features included: full screen editing, double column printing, page no.s, headers-footers, centering, condensed, elongated, margin setting, underling search and replace and much more. (Disk) List $99.00 **SALE $49.95**

JOYSTICK SALE

SALE $ 16.95 List $24.95

This Pro 5000 with microswitches has been rated No. 1 in joysticks. Arcade Quality. List $24.95 **SALE $16.95**

FLIP—N—FILE

SALE $ 14.95 List $24.95

Everyone needs a floppy disk secretary. Dust and dirt can hurt your disks. Proper filing and protection of you disk collection will reduce unnecessary wear and tear. Flip-N-File holds over 70 disks in one easy to find, protective filer. List $24.95 **SALE $14.95**

SOFTWARE

ACCESS

ACTION PACK (D)	$14.95
LEADER BOARD (D)	$24.95

ACCOLADE

FIGHT NIGHT (D)	18.95
HARDBALL (D)	18.95

ACTIVISION

ON TRACK RACING (D)	$15.95
STAR LEAGUE BASEBALL (D)	15.95
SPACE SHUTTLE (D)	15.95
HACKER (D)	15.95
MIND SHADOW (D)	15.95
MASTER OF THE LAMPS (D)	15.95
GREAT AMERICAN CROSS COUNTRY RACE (D)	15.95
GHOSTBUSTERS (D)	19.95

BATTERIES INCLUDED

HOME PACK (D)	$19.95
PAPER CLIP (D)	29.95

BRODERBUND

PRINT SHOP (D)	$25.95
PRINT SHOP COMPANION (D)	22.95
GRAPHICS LIB. 1,2 or 3 (D)	15.95
KARATEKA (D)	18.95

COSMI

CAVERNS OF KHAFKA (D)	$12.95
TALLADEGA (D)	12.95
BEYOND FORBIDDEN FOREST (D)	12.95
MASTERS OF TIME (D)	12.95
AZTEC CHALLENGE (D)	4.95
E FACTOR (D)	4.95
CRYPTS OF PLUMBOUS (D)	4.95
SPIDER INVASION (T)	4.95

DATA SOFT

MR. DO (D)	$9.95
PAC-MAN (D)	9.95
DIG DUG (D)	9.95
POLE POSITION (D)	9.95
CONAN (D)	9.95
NEVER ENDING STORY (D)	18.95
MERCENARY (D)	18.95
221 B BAKER STREET (D)	18.95

ELECTRONIC ARTS

ONE ON ONE (D)	$9.95
PINBALL CONTRUCTION (D)	9.95
MUSIC CONSTRUCTION (D)	9.95
RACING DESTRUCTION (D)	9.95
AGE OF ADVENTURE (D)	9.95
SUPER BOULDERDASH (D)	9.95
SEVEN CITIES OF GOLD (D)	9.95
M.U.L.E. (D)	9.95
GOLDEN OLDIES (D)	19.95
MOVIE MAKER (D)	22.95
OGRE (D)	26.95
CHESSMASTER (D)	26.95
LORDS OF CONQUEST (D)	22.95

EPYX

PITSTOP II (D)	$5.95
DRAGONRIDERS OF PERN (D)	9.95
BALL BLAZER (D)	12.95
RESCUE ON FRACTULUS (D)	12.95
THE EIDOLON (D)	12.95
JUMPMAN (D)	14.95
WORLD KARATE CHAMP (D)	18.95
SUMMER OLYMPIC GAMES (D)	22.95

GAMESTAR

ON TRACK RACING (D)	$15.95
STAR LEAGUE BASEBALL (D)	15.95
STAR BOWL FOOTBALL (D)	15.95

HAYDEN

SARGON II (D)	$9.95
SAT VERBAL MODULE (D)	14.95
SAT MATH MODULE (D)	14.95
SAT PRACTICE TEST (D)	14.95

HI—TECH EXPRESSIONS

CARD WARE (D)	$7.95
HEART WARE (D)	7.95
PARTY WARE(D)	9.95
WARE WITH ALL KIT (D)	9.95
JINGLE DISK (D)	5.95
HOLIDAY PRINT PAPER (D)	7.95

INFOCOM

MOONMIST (D)	$24.95
BALLYHOO (D)	24.95
HITCHHIKER'S GUIDE TO THE GALAXY (D)	22.95
WISHBRINGER (D)	22.95

S.S.I.

BATTLE OF ANTIETAM (D)	$32.95
GETTYSBURG (D)	34.95
MECH BRIGADE (D)	34.95
NAM (D)	23.95
U.S.A.A.F. (D)	34.95
KAMPFGRUPPE (D)	34.95
SIX GUN SHOOTOUT (D)	23.95
CARRIER FORCE (D)	23.95
FIELD OF FIRE (D)	23.95
IMPERIUM GALATUM (D)	23.95
BROADSIDES (D)	23.95
COMPUTER QUARTERBACK (D)	23.95
COUMPUTER BASEBALL (D)	23.95
COLONIAL CONQUEST (D)	23.95
COMPUTER AMBUSH (D)	32.95

XLENT

TYPESETTER (D)	$21.95
RUBBER STAMP (D)	18.95
PAGE DESIGNER (D)	18.95
P.S. INTERFACE (D)	18.95
IST XLENT WORD PROCESSOR (D)	18.95
MEGAFONT (D)	16.95

PEACHTREE

GENERAL LEDGER (D)	$37.95
ACCOUNTS RECEIVABLE (D)	37.95
ACCOUNTS PAYABLE (D)	37.95

AMERICAN EDUCATIONAL COMPUTER

BIOLOGY FACTS (D)	$9.95
ELEMENTARY SCIENCE FACTS (D)	9.95
U.S. GEOGRAPHY FACTS (D)	9.95
U.S. GOVERNMENT FACTS (D)	9.95
U.S. HISTORY FACTS (D)	9.95
WORLD GEOGRAPHY FACTS (D)	9.95
WORLD HISTORY FACTS (D)	9.95
FRENCH VOCABULARY SKILLS (D)	9.95
SPANISH VOCABULARY SKILLS (D)	9.95
AEC SPELLING (D)	19.95
LEARN TO READ (D)	19.95
READING COMPREHENSION (D)	19.95

DESIGNWARE

SPELLAKAZAM (D)	$9.95
TRAP-A-ZOID (D)	9.95
SPELLAGRAPH (D)	9.95
MATH MAZE (D)	14.95
CRYPTO CUBE (D)	12.95
SPELLICOPTER (D)	14.95
MISSION ALGEBRA (D)	24.95
BLUE CHIP TYCOON (D)	14.95
BLUE CHIP MILLIONAIRE (D)	14.95

FISHER PRICE — **BUY 1 GET 1 FREE**

LINKING LOGIC (C)	$9.95
DANCE FANTASY (C)	9.95
MEMORY MANOR (C)	9.95
LOGIC LEVELS (C)	9.95

MINDSCAPE

BANK STREET WRITER (D)	$25.95
CROSSWORD MAGIC (D)	29.95
THE HALLEY PROJECT (D)	22.95

SPINNAKER — **BUY 1 GET 1 FREE**

DELTA DRAWING (C)	$9.95
FACEMAKER (C)	9.95
KIDS ON KEYS (C)	9.95
DELTA DRAWING (C)	9.95

SYNAPSE

MINDWHEEL (D)	$19.95
ESSEX (D)	19.95
SYNCALC (D)	29.95
SYNCALC TEMPLATES (D)	14.95

WEEKLY READER

PICTURE BUILDER (D)	$14.95
STICKYBEAR BOP (D)	14.95
STICKYBEAR NUMBERS (D)	14.95
STICKYBEAR BASKET BOUNCE (D)	14.95
STICKYBEAR OPPOSITES (D)	14.95
STICKYBEAR ABC (D)	14.95
STICKYBEAR SHAPES (D)	14.95

BEST SERVICE IN THE U.S.A. • 90 DAY REPLACEMENT WARRANTY • ONE DAY EXPRESS MAIL • 15 DAY FREE TRIAL • OVER 500 PROGRAMS • A CUSTOMER LIST OF OVER 3,000,000 LARGEST IN THE U.S.A.

CALL FOR FREE CATALOG WITH $2.00 OFF COUPON!

PHONE ORDERS

8 a.m. - 8 p.m. C.S.T. Weekdays

9 a.m. - 12 noon C.S.T. Saturdays

(312) 382-5244

Add $3.00 for shipping, handling, and insurance. Illinois residents please add 6½ % sales tax. Add $6.00 for CANADA, PUERTO RICO, HAWAII, ALASKA, APO-FPO orders. All orders must be in U.S. Dollars. WE DO NOT EXPORT TO OTHER COUNTRIES EXCEPT CANADA. Enclose Cashier Check, Money Order or Personal Check. Allow 14 days for delivery, 2 to 7 days for phone orders, 1 day express mail. Prices & Availability subject to change without notice. Hardware shipping prices vary according to weight. Please call for amount. (No APO-FPO for monitors)

VISA—MASTER CARD—C.O.D. C.O.D. on phone orders only.

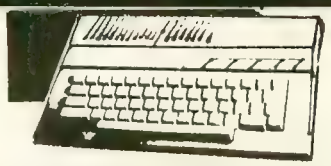
OUR COMPANY WARRANTY

All of our products carry a minimum 90 day warranty. If anything fails within 90 days from the date of purchase, simply send your product to us via United Parcel Service prepaid. We will IMMEDIATELY send you a replacement at no charge via United Parcel Service prepaid. This warranty proves that ***We Love Our Customers.***

CIRCLE 049 ON READER SERVICE CARD

SAVE SUPER DEALS SALE

(312) 382-5244 TO ORDER



ATARI 130XE 152K COMPUTER

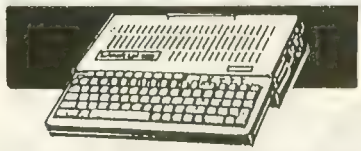
SALE $134.95 List $249

This 128K Ram, 24K Rom computer has a redesigned keyboard for easier use. Features 256 colors, 4 special function keys, and more. List $249.00 **SALE $134.95**

1050 DISK DRIVE WITH 127K

SALE $159.95 List $299

You can instantly store and retrieve information and programs 5 times faster than the Commodore 1541. Contains its own microprocessor and ROM. DOS 2.5 included. List $299.00 **SALE $159.95**



APPLE® COMPATIBLE SYSTEM SALE

SALE $499.00 List $1227

Marvelous! Save over $700! Included are: Laser 128 Computer, Big Blue Printer, 12'' Samsung Green Monitor, Interface, Magic Window IIe Word Processor, Magiccalc Spreadsheet, Magic Memory Data Base and 2 Paper Rolls. List $1227.85 **SALE $499.00**

ATARI SYSTEM SALE

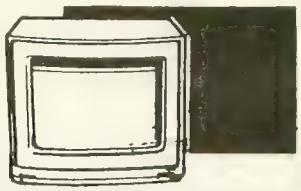
SALE $299.00 List $361

Here are the fantastic items you'll receive: Atari 130XE, Atari 1050 Drive, Big Blue Printer, Atari Interface, and 2 Rolls of Paper. Save over $60 off the sale prices! List $361.75 **SALE $299.00**

12'' 80 COLUMN MONITOR

SALE $79.95 List $129

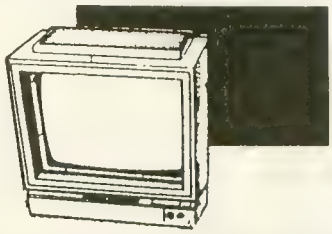
Super High Resolution green screen monitor. 80 columns x 24 lines, easy to read, plus easy to adjust control knobs. Supreme Quality. Fantastic value. (cable $9.95) List $129.00 **SALE $79.95**



14'' COLOR MONITOR

SALE $139.95 List $329

This premium quality monitor comes with speaker and audio hook up, High Resolution, clear screen, 40 columns x 24 lines, front panel controls and more. Can also be used with VCR. One year warranty. (cable $9.95) List $329.00 **SALE $139.95**

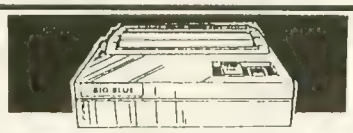


14'' RGB & COMPOSITE COLOR MONITOR

SALE $237.00 List $399

Must be used to get 80 columns in color with 80 column computers (C128 - IBM - Apple) (RGB cable $19.95) Add $14.50 shipping. List $399.00 **SALE $237.00**

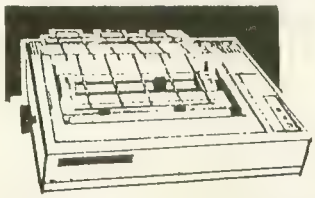
BIG BLUE PRINTER



SALE $39.95 List $199

This is the affordable printer you have been waiting for! This 8½'' letter size, 80 column dot matrix, heat transfer printer features upper and lower case, underline, graphics, word processing, and much more. List $199.00 **SALE $39.95**

PREMIUM QUALITY 150-170 CPS COMSTAR AERO 160 PRINTER



SALE $199.00 List $499

The Comstar Aero 160 gives you a 10'' carriage, 150-170 CPS, 9x9 dot matrix with double strike capability for 18x18 dot matrix (*near letter quality), high resolution bit image (120x144 dot matrix), underline, back spacing, left and right margin setting, true lower descenders with super and subscripts, prints standard, block graphics and special characters. It gives you print quality and features found on printers costing twice as much! (Centronics Parrallel Interface) List $499.00 **SALE $199.00** (*with Xetec interface)

TV TUNER

SALE $49.95 List $130

This tuner has dual UHF/VHF selector switches, mute, automatic fine tuning and computer/TV selector switches. Hook it up between your computer and monitor! Inputs included for 300 ohm, 75 ohm, and UHF. List $129.95 **SALE $49.95**

PRINTER/TYPEWRITER COMBINATION

SALE $199.95 List $299

Superb Silver Reed letter quality daisy wheel printer/typewriter combination, just a flick of the switch to interchange. Extra large carriage, typewriter keyboard, automatic margin control, compact, lightweight, drop in cassette ribbon! (90 day warranty) Centronics Parallel Interface is built in. List 299.00 **SALE $199.95**

COMSTAR 1000 PRINTER

SALE $199.95 List $349

This is the best values today. Print letters, documents, ect. at 100 characters per second and has **Near Letter Quality** mode. Features are dot addressable graphics, adjustable tractor and friction feed, margin settings, pica, elite, condensed, italics, super & subscript, underline, bold, and double strike. Centronics interface included. (please specify Atari) List $349.00 **SALE $199.95**

CALL BEFORE YOU ORDER: OUR PRICES MAY BE LOWER & AND WE OFFER SPECIAL SYSTEM DEALS

ATTENTION

COMPUTER CLUBS • DEALERS

We offer big volume discounts!

CALL TODAY

COMPUTER DIRECT

A DIVISION OF **PROTECTO ENTERPRIZES** • *We Love Our Customers*

22292 N. Pepper Rd., Barrington, Illinois 60010

(312) 382-5244 TO ORDER

ST PRODUCT NEWS

ST Reviews

MULTI-FORTH
Creative Solutions Inc.
4701 Randolph Road
Rockville, MD 20852
(301) 984-0262
$149

CIRCLE 252 ON READER SERVICE CARD

MACH2 FORTH
Palo Alto Shipping Co.
P.O. Box 7430
Menlo Park, CA 94026
(800) 44FORTH
$59.95

CIRCLE 253 ON READER SERVICE CARD

Reviewed by Sol Guber

Forth is a strange combination of computer language and religion. You gotta believe in Forth before you can program it.

Mach2 Forth and **MultiForth** are both written by believers. This comes through on every page of both manuals. Both versions are good, solid implementations that anyone would be proud of. However, each of the Forths has drawbacks that become evident when you see how the other version does the same thing.

Forth is a language that you define as you go along. You don't write programs, but rather you make tools that finally let the computer perform an action. It's very fast and makes compact code. Unlike C, Pascal, or Modula-2, no linking or compiling programs are involved in making your final program. All Forth needs is an editor and an assembler.

MultiForth supplies EMACS, the standard editor found in other programs. It doesn't use the mouse or support GEM. You type in the name of the file to be edited and away it goes. EMACS uses the cursor controls and cryptic commands, and it supports multiple windows. MultiForth even has another editor to support the 1028 block structure initially designed for Forth.

The Mach2 editor is window-based and supports GEM and the typical menu bar. You just move to a spot you want with the cursor. It doesn't have as many control codes as EMACS, but it has a number of common commands controlled by the function keys, such as saving a file or moving to the next page. Of the two, I prefer the Mach2 editor, but I'd have been satisfied with EMACS if a better editor weren't available.

The two assemblers are similar. The MultiForth assembler has a slight edge overall and uses high-level control structures like BEGIN, IF, LOOP and reverse Polish syntax.

Forth prides itself on being a language that runs at blinding speed. Mach2 gives the sieve speed-test program on the disk and I rewrote it for MultiForth. Each Forth completed 10 run-throughs of the test in just over 5 1/2 seconds—or approximately one-half (.55) of a second apiece. Mach2 may have be slightly quicker, but it is a only a matter of milliseconds.

The next area of difference is support of GEM and AES. The ST is known for ease of use, and thus the programmer must spend much time and effort to make it easy with menus and icons and all the mouse controls. This requires BIOS, XBIOS, GEMDOS, AES and VDI functions—which are supported by both Forths.

Mach2 provides a 10-page listing of all functions supported, with additional information on the disk files. MultiForth does not explicitly give a listing of AES or VDI. There are generalized BIOS and XBIOS words and a listing of the kernel words at the end of the manual. The majority of the functions do seem to be present, but if you don't know the exact name used by MultiForth for a function, it's hard to find. However, the explanations for these functions is better in MultiForth.

A major problem with all versions of Forth is that there are so many words that have been defined to perform actions. These two Forths are no exception. MultiForth wins the points for the most words, with short complete definitions for each. Mach2, despite fewer predefined words, gives good examples of how to use them.

Mach2 supports multitasking of operations for the ST. MultiForth has stated that multitasking will be supported in the next revision. Mach2 has floating point numbers supported with words already present. MultiForth does not mention them. (This is a major schism in the Forth religion).

MultiForth comes with a nice loose-leaf binder containing many chapters separated by yellow sheets. The pages are not numbered consecu-

tively, and there is no index. Mach2 has a nice softcover book with an index and an end sheet with many kernel words. They have lots of details for the beginner, lots of details for the advanced programmer who needs to know how this Forth is different than other packages. However, there's no middle ground for the weekend programmer who has read several books on Forth but needs to know how to write useful programs.

To get around this, Mach2 has about 35 demo and utility programs while MultiForth has about 55. Studying the examples helps make up for the incompleteness of the manuals.

Which is better? That's hard to say. Both are very good. Neither would make you unhappy. Each could be better, but not by much. Mach2 is considerably less expensive. What should a programmer do? Flip a coin and learn to love the one you bought!

LITTLE COMPUTER PEOPLE

Activision Software
P.O. Box 7286
Mountain View, CA 94039
(415) 960-0410
$49.95

CIRCLE **258** ON READER SERVICE CARD

Reviewed by Sol & Rebecca Guber

Dear Winslow, Our Little Computer Person:

It is a pleasure to have you in our computer. Rebecca and I felt she needed a playmate and that you would fit the bill nicely. When we saw your wonderful house on the screen, we felt it was good addition to our neighborhood. It's the only one on the block with three levels. On the top floor is your den, where you watch television and type letters to us. There is a file cabinet where you keep all of your games that you play with us. (I wish that Rebecca could keep things so neat.)

I am still amazed at how real your house appears. The doors, cabinets and files open. The clock on the wall shows the real time, and the television and computer screens really work. We can tell where you are by the sound of your footsteps. They're loud on your hardwood floors, but we can't hear them on the carpet. It's even easy to tell the pattern of how you walk up the stairs. I'm glad you moved into the computer. It's lots of fun watching you, and I almost consider you a part of the family now. Just don't ask for an allowance.

Sol

Dear Winslow, My Little Computer Person:

I like you a lot too, but I think you are too cute. At first I really did not like you, but you are more friendly now. You even tap on the screen when you want to play. We play games like War, 21 and Poker (which my dad won't teach me) and we unscramble anagrams and discover the sentences.

The games are a little strange. In the sentence game you have to find famous sayings, but some words are missing, with just the first letter of the words being there as a hint. You must think I'm dumb, but with only 33 sentences to be discovered, it took less than a week to do them all. You must also think I'm real smart too, because the anagrams are really hard. How many third-graders know the word "bagatelle"? Words like cilium, axiom, idyll and hydra I had to look up in the dictionary.

I also think you cheat a little at 21. The cards are in strange positions and it's hard to tell what your score is and what my cards add up to. I was sure I had 21, but then *you* picked cards until you got 21 and said you were the winner. I'm not sure this is how to play. War is a good game, but after 10 minutes it gets bo-o-ring. But your comments seem to help a lot. I didn't play Poker, but my dad thinks it's all right.

I like the idea that you are living in my computer and that I have to take care of you and make sure that you have enough food and water. I must also make sure that there is food for the dog—I forget all about the dog. But whenever you write a letter to me, all you talk about is food and water. I wish you would talk about something else. I also wish I could control you with the mouse, but then my dad says the same thing about me.
Love,

Rebecca

ST SCRUNCH

Cherry Software
3415 East Fifth Street
Dayton, OH 45403
$14.95

CIRCLE **211** ON READER SERVICE CARD

Reviewed by Sol Guber

With **ST Scrunch** from Cherry Software, you can compact disk files and save them in less space, thereby packing more information onto the disk. You can also unscrunch a file back to its original form.

ST Scrunch uses a superset of the IBM 3780 BISYNC data transmission protocol to achieve compaction of about 5% for object files and about 30% for text files. This reduces the time needed to send large amounts of information over communication lines.

Pick a source drive, then a target drive, then scrunch!

ST Scrunch requires either two disk drives or a disk drive and a 360K RAMdisk. Easy to operate, it comes in either a GEM version or a command line version. You pick a source drive, then a target drive, then scrunch or unscrunch!

To use this utility properly, you should copy all the files you wish to scrunch onto a clean disk. All information on the disk will be scrunched. Note that if you have erased some files, the old information there will

continued on next page

also be reduced, even though the filenames have been removed from the directory. This might make a scrunched file longer than an unscrunched file. The scrunch operation also does not work on copy-protected disks.

On the disk with ST Scrunch are several printing utilities for Epson printers. With these you can vary the fonts, go to an enhanced mode and perform other useful operations by clicking on the proper choice in a dialog box. There are also two programs to toggle the verify option back and forth.

ST Scrunch works quickly and easily. If this is the kind of program you need, it's a good value.

DOS SHELL
MichTron Inc.
576 S. Telegraph
Pontiac, MI 48053
(313) 334-5700
$39.95

CIRCLE 236 ON READER SERVICE CARD

Reviewed by Sol Guber

MichTron Inc. has released a large number of utility programs for the ST. The three products covered in this review are of varying quality. The best value is **DOS Shell**, an excellent mimic of the popular MS-DOS operating system that gives you commands otherwise unavailable through GEM. **MichTron Utilities** ($59.95) is a collection of programs for manipulating disk information. **DFT** ($49.95) is a Direct File Transfer program that works between an IBM PC and an Atari ST—but requires a null modem cable not included in the package.

DOS Shell is a disk operating system for those who are tired of the mouse. The commands are similar to those in MS-DOS, which is used on IBM PCs and compatible computers. Instead of the mouse and icons, you can have a clear screen, a command line and a prompt with a blinking cursor.

I pulled out my IBM MS-DOS manual and looked through the section about operating commands. (The capital letters in the following commands are the official names.) General commands include HELP, Clear Screen, CHeckDisk, DATE, TIME, VERsion, VERIFY save, set PATH, RUN program and EXIT. The file manipulation commands include DIRectory, COPY files, DELete files, RENAME, TYPE file, CHANGE DIRectory, MaKeDIRectory, ReMoveDIRectory, TREE, PROMPT and SET Environment. There are also batch operation commands including ECHO, GOTO, IF, PAUSE, REMark, SHIFT, PIPES and FILTERS.

Most of the commands are self-explanatory, but some functions are unavailable with the present GEM system, and here is where DOS Shell really becomes valuable. If you want to list the directory on disk A to the printer, you'd type in DIR A:>>P:. To use the data in file text for your speller,

IBM-type disk operating system for users tired of the mouse

type RUN A:SPELLER<text—and you won't need to use the pop-up directory. With the use of PIPES, you can make a temporary file and use this file for data for another program.

The FILTER command displays a modified version of the data from a standard input device. The three filters include More, which stops at the bottom of a page; Sort, which alphabetizes information; and Find, which looks for information.

You can set up and run batch files with a series of commands. Batching lets you automatically run a group of programs by typing the name of the file containing multiple commands. You can perform common repeated operations all at once. For example, you could put in a batch file to initialize your printer, call up the RAMdisk, install the printer spooler, load a word processor and assign a disk drive for the results.

DOS Shell is unobtrusive and is not copy-protected, so you can put it on whatever disks you want to use it with. While many operations are easier with a mouse, this DOS allows more operations and is quite useful. It also makes it easier for your boss to believe that you are not just playing a game on the ST.

The MichTron Utilities package is an anthology of programs that manipulate disk information. You can search through files or disks, change file contents or attributes, restore deleted files, recover data or repair damaged disks. There is also a simple routine for copying entire disks, and a new formatting program that increases disk storage room by 10 percent.

One major use for this program is to examine and modify individual bytes. The information is displayed in both hexadecimal and ASCII format on the screen. To change a value in the file, point to the spot on the screen where you want to make a change, type in that change and save it back to the disk.

A second use is to recover files that have been accidentally deleted or corrupted. You check through each disk sector and decide if the information belongs in that file. This is mainly useful for text data and perhaps numbers, but such information is hard to discern in any sort of program files.

The last utility, DFT, is a direct file transfer program between an IBM PC and an ST. You connect the computers through their RS-232 ports with a null modem cable, which you can obtain by mail from MichTron or make by following the wiring diagram in the manual. DFT uses a disk for the ST and one for the IBM, and the program works in both directions. The speed of information transfer seems to be about 2400 baud, though I was unable to verify this.

I should point out that MichTron's guarantee and update policies are unusual. Defective disks are replaced free, while under warranty. If the program works but doesn't do what you need, you can return it and get credit for another program. This seems more than fair. However, minor updates cost $5 and for major revisions the cost is 15-20 percent of the original retail price.

ST New Products

by GREGG PEARLMAN, **Antic** Junior Editor

VIDEO DIGITIZER

Antic saw the **Print-Technik Video Digizer PRO** at Atari Corp. in October, 1986. We don't have PRO yet, but we eagerly await it. Resolution is 512 pixels horizontally, while vertical resolution depends on the source of the video signal. Once the picture is in memory, you can store it on disk and modify it with NEOchrome, DEGAS or Doodle. The object is digitized in black-and-white, but with a color monitor you can do almost anything to the picture, and you can print it in any size on a dot-matrix printer.

Among the other products announced by Print Technik are the **Meteostat Weather Satellite Receiving Station** which can read in 800×800 pixel weather satellite pictures in 16 gray levels and store them on disk. You can define an excerpt or print the picture in any size. The **Data Switch Box** can be used to connect a printer to the centronics port at the same time as the digitizer and the Meteostat receiver.

Print-Technik Munich, 8000 Munich 40, Nikolaistrasse 2, West Germany. 089/368197.

Haba Systems Ltd., Pier Road, North Feltham Trading Estate, Feltham, Middlesex, TW14 0TT, England. DEMO.

GENERAL LEDGER

Written in C, Synsoft's **General Ledger Program** features automatic double-entry accounting, automatic check writing and up to 500 active checking accounts. It works on color or monochrome monitors and on hard disk or floppies. Ledgers are automatically posted using data entered from the keyboard, and continuous error-checking insures database integrity.

$69.95. Synsoft, P.O. Box 561, Allen, TX 75002. (214) 727-2466. FINAL.
CIRCLE **262** ON READER SERVICE CARD

STAR FLEET 1

Star Fleet 1: The War Begins is available for the ST as well as Atari 8-bit computers. As an Alliance member, you're called upon to protect the outer regions against the Krellan and Zaldron empires and command a cruiser equipped with sophisticated weaponry.

$55. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171. PRESS.
CIRCLE **269** ON READER SERVICE CARD

LABELMASTER, FAST, EASYDRAW

The GEM-based **LabelMaster** ($39.95) lets you combine bit-mapped graphics with a sophisticated mailing list manager to produce labels with flashy graphics. Features include more than 100 on-disk designs, a graphics editor to create your own designs and print multi-color images.

FAST ($49.95) contains several useful programs in one desktop accessory, operating in any resolution. FAST inclues ST-DOS, which lets you perform common DOS commands without returning to the desktop; ST Editor, with search-and-replace and block editing; Card File, an electronic address book; and a calculator, calendar, ASCII table and clock.

Updated **EasyDraw Version 2.0** ($79.95) helps you create graphics, business charts, flow diagrams and technical illustrations. EasyDraw gives you a single GEM file format, metric and inch measurements, Change Arc and Arrange commands and automatic copy of objects between windows.

Migraph, 720 South 333rd Street, Suite 201, Federal Way, WA 98003. (206) 838-4677. PRESS.
CIRCLE **263** ON READER SERVICE CARD

ABACUS SOFTWARE AND BOOKS

PowerPlan ST ($79.95) is a 65,535×65,535-cell spreadsheet with a built-in calculator, a notepad and business graphics. Data can be summarized in pie charts, bar and line graphs and displayed simultaneously. The GEM-based program can use as many as seven windows and works on either a monochrome or color monitor.

AssemPro ($59.95), a machine language development package, features complete GEM-based interface, an integral editor with GEM and instruction mode reference online and interactive debugging and monitor.

The newest addition to Abacus' ST reference library, **ST Peeks & Pokes** ($16.95), has dozens of quick programming tips.

Abacus Software, P.O. Box 7219, Grand Rapids, MI 49510. (616) 241-5510. PRESS.
CIRCLE **265** ON READER SERVICE CARD

34.4-MEG HARD DISK

Berkeley Microsystems' 34.4 megabyte **BMS 3500 Hard Disk** ($1,950) is as much as 16 times faster than floppy drives and 25% faster than the Atari hard disk, with a 30 millisecond average seek time. A separate interface ($135) has a real-time clock/calendar with battery backup.

Berkeley Microsystems, 1107 El Centro Avenue, Oakland, CA 94602. (415) 530-3436. PRESS.

MIDI SOFTWARE 4

Metatrak, a 32-track software recording studio, connects any MIDI instruments with an ST. Metatrack offers fast real-time record, playback, overdub, rewind and fast-forward; 32 polyphonic independently-controlled tracks; and full track editing enabling you to combine, move, copy and erase any combination of the 32 tracks.

$99. MIDIsoft Corp., P.O. Box 1000, Bellevue, WA 98009. (206) 827-0750. PRESS.
CIRCLE **266** ON READER SERVICE CARD

An extensive MIDI music library is available from Micro-W Distributing for the ST containing recordings by Gershwin, Joplin and others. Each six-song disk costs $19.95.

Micro-W Distributing Inc., 1342B Route 23, Butler, NJ 07405. (201) 838-9027. FINAL.
CIRCLE **267** ON READER SERVICE CARD

continued on page 84

TIME BANDIT

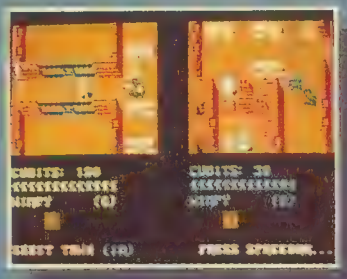
by Bill Dunlevy & Harry Lafnear

Listed as the #1 arcade game in CSS's top ten!

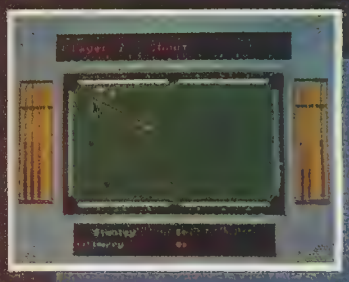
Blast the evil creatures and escape with the Treasure. Visit 16 different lands, each with 16 levels. Find the Artifacts and conquer the Gates of Time! Over 3,000 screens in all!

Includes 3 built-in text-adventures, and even has a Save Game feature! The conquest of Time and Space awaits you...

(Color monitor or television required) $39.95



Cards $39.95



8 Ball $29.95

MAJOR MOTION

by Philip MacKenzie & Jeffrey Sorensen

Hunt enemy spies in this thrilling driving game. Cars try to smash you off the road, and the enemy helicopter is never far behind...

Race down highways, curves, ice, and even a waterway with islands and deadly reefs!

Force enemy cars off the road, or use your machine-guns. Missiles, smoke screens and other special weapons help you to survive.

(Color Monitor or television required) $39.95

Animator $39.95

Pinball Factory

These and other fine programs for your Atari ST. Ask for our latest catalog!

Dealer inquires welcome • Visa and Mastercard accepted • Add $3.00 shipping and handling to each order.

MichTron

576 S. Telegraph, Pontiac, MI 48053
Orders and Information (313) 334-5700

CIRCLE 064 ON READER SERVICE CARD

ATARI® 8-BIT POWER

ALPHA SYSTEMS is constantly innovating to provide more power for your 8-bit Ataris.

You don't need an ST to run high-powered software. Your Atari 400, 800, 800XL, 1200XL or 130XE can compute circles around others with these quality packages. – Don't let our low prices fool you – Super Quality doesn't have to be over priced.

DIGITIZE YOUR WORLD Now you can connect your Atari to a wide range of external interfaces that you can build. This how-to book (over 150 pages) includes all the instructions needed to build a light pen, household appliance controllers, alarm systems, light and motion detectors, voice recognition, and much, much more. The book **Your Atari Comes Alive** includes detailed schematics and instructions for each device. The disk includes the BASIC and Assembler programs to run them. Create your own exciting devices and save money!

Your Atari Comes Alive – Introductory Price **$24.95**

DIGITIZING POWER

PARROT The hardware & software you need to digitize real world sounds and play them on your computer. Make your Atari speak in your own voice record and play sounds from a complete orchestra. Play the digitized instruments and sounds from your keyboard, or put them in your own BASIC programs. PARROT is now being used for special effects by professional musicians. Turn your Atari into a digital sound sampler and keyboard. Everything you need to record and play digital sounds **$39.95**

Additional pre-recorded sound tracks **$4.95**/with purchase of PARROT.

COMPUTEREYES™

Feed the pictures from your video camera or VCR into your computer and save the images as a graphics screen. Put your picture in your own programs, or digitize your favorite movie star.

Our COMPUTEREYES and MAGNIPRINT II+ combination special lets you print your pictures in 16 shades of grey with incredible detail. Combine the features of MAGNIPRINT II+ and COMPUTEREYES for digitizing power that can't be beat. Koala Pad, Touch Tablet compatible.

COMPUTEREYES and MAGNIPRINT II+ $ 119.95
COMPUTEREYES only $ 99.95
COMPUTEREYES, B/W VIDEO CAMERA, MAGNIPRINT II+, and CABLE $329.95
GRAPHICS 9 CAPTURE SOFTWARE $ 12.00

MAGNIPRINT II+

Easily the most powerful and versatile printer package available. Accepts screens from Koala Pad, Print Shop, RAMbrant, MicroPainter, SynGraph, Touch Tablet, Typesetter, Graphics Master, many, many others. Prints in literally hundreds of sizes, shapes, shades, and distortions, including 6 ft. poster printing. Create detail and resolution thought impossible on a standard dot matrix printer. Supports 16 shades of grey and even color printing (you need color ribbons or color carbons for that). Touch-Up your pictures with multi-size and multi-font text. Works on STAR, Gemini, Panasonic, CITOH, NEC, EPSON or compatible printers. (850 interface or equivalent required).

Incredibly priced for only $24.95

Free BONUS with every MAGNIPRINT II+ – PRINTALL prints your programs and files with all Atari inverse and graphics characters.

GRAPHICS TRANSFORMER Create Print Shop icons from your favorite drawing program, a ComputerEyes digitized photo, or saved picture files. Create, Merge, Shrink, or Enlarge to transform your graphics from one to another. Transfer pictures between programs to use the features you need.

ONLY **$22.95**

HYPERSONATOR

Cartridge to Disk copy system. Create running back-ups of any cartridge (up to 16K) on Disk. ONLY **$29.95**

THE Scanalyzer

Extract the programming secrets for any Atari program. Scanalyzer easily breaks through protection to let you list and study programs. Works with programs on Disk or Cartridge, finds hidden directories, detects copy protection methods and more. ONLY **$29.95**

PROTECT YOUR PROGRAMS AUTOMATICALLY COPY PROTECTION METHODS EXPOSED

Now the state of the art secrets of software copy protection, piracy, phone phreaking, and hacking are revealed. These comprehensive book and disk packages take you from a novice to an expert in this fast changing field. Everything you need to understand complex protection, and create your own custom methods. Topics include, Unstable Sectors (Phantom or Fuzzy Sectors), Forced CRC Errors, Overfilled Tracks, Short Sectoring, Hardware Data Keys, Cartridge Protection, Cassette Protection, Crackdown on Pirates, New Laws Dealing with Piracy, Hacking, On-Line Security, Phone Phreaking, Building Black Boxes, Pirate Bulletin Boards Systems, Trojan Horse Programs, Logic Bombs, Self-Destructing programs, much, much more.

The disks included with these books contain powerful utilities to let you automatically protect your files. Features include;

- Automatic directory hiding
- Data encryption (stops pirates from changing your copyrights, etc.)
- Limited use option (makes the program self destruct after a limited numbe of runs)
- Password option (requires an 8 byte password before the program will run)
- Disk Protection check (have your program check disk protection before running)

Use these methods and more automatically, with no programming skills needed.

BOOK I and DISK I $24.95
BOOK II (Advanced protection) and DISK II $24.95
Special limited time offer – BOTH SETS for $39.95

24 HOUR HOTLINE (216) 374-7469

VISA or MasterCard Welcome. Call or Write for our Free Catalog
Customer Service (216) 688-9014 9am-3pm EST M-F
*All for Atari Disk Drive at least 48K required

Order by phone or send check or money order to:
ALPHA SYSTEMS
4435 Maplepark Rd.
Stow, OH 44224
Include $3.00 shp & hdlg (US & Canada). Ohio residents add 5½% sales tax. Foreign orders add $8.00 shipp & hdlg.

ALPHA SYSTEMS

BONUS: Order any 3 programs and get FREE your choice
☐ Deluxe Space Games ☐ Utility Pack 1000.

CIRCLE 007 ON READER SERVICE CARD

ST NEW PRODUCTS
continued from page 81

ZOOMRACKS UPGRADE

Quickview Systems has updated **Zoomracks**, a database system based on a metaphor of timecard racks, allowing merging of two or more racks and "zooming in" on particular racks. **Zoomracks II** has a four-function calculator, mail-merge and report formatting. Data can be imported and exported from other software, including DEGAS. Zoomracks I and II both get improvements in: menu, online help commands, disk backup, rack loading and screen display. Current Zoomracks users can upgrade to II for $79.95.

$149.95. Quickview Systems, 146 Main Street, Suite 404, Los Altos, CA 94022. (415) 949-3000. FINAL.

CIRCLE 275 ON READER SERVICE CARD

PLAN AHEAD

With **Plan Ahead**, you'll do exactly that. The first of the three modules in this software package creates a Total Retirement Plan completely accounting for each individual's particular circumstances. Life Insurance Planning helps determine how much life insurance you'll need to provide for the family if you're unable to. And College Funding determines the savings needed for your children to have adequate funds for their chosen schools. The package costs $59.95, but each module is $29.95 and any two modules cost $49.95.

Advanced Financial Planning, 20922 Paseo Olma, El Toro, CA 92630. (714) 855-1578. PRESS.

CIRCLE 117 ON READER SERVICE CARD

FIRST BYTE TALK

The first products in First Byte's Talking Notebook Series have been released. **Speller Bee** improves children's spelling skills, providing practice routines, challenging games and simulated tests. After Speller Bee says each word, the child is asked to type it. Pre-schoolers will improve word-recognition skills, and older children can enter their own lists from school.

KidTalk, a talking word processor with exciting graphics, guides children in communicating ideas more effectively. Unlimited text-to-speech capabilities enable children to hear text spoken letter by letter, word by word or by sentence as they type. Children can write stories, proofread written materials and learn word processing skills. KidTalk includes both male and female voices and the ability to control speech variables including volume, pitch, tone and speech.

MathTalk lets children enter their own math problems and receive individualized graphic and spoken help specific to each problem from Professor Matt A. Matics—a "private tutor" who can help overcome difficulties with each problem entered.

First Shapes introduces Ted E. Bear, who teaches children about shapes and relative size. In the Toy Factory section of First Shapes, each child can use geometric shapes to build toys onscreen, from dolls to space ships.

$49.95 each. First Byte, 2845 Temple Avenue, Long Beach, CA 90806. (213) 595-7006. FINAL.

CIRCLE 118 ON READER SERVICE CARD

QUIKCARDS FOR FLASH

This second release of **Quikcards** quick-reference cards supports the FLASH communications program from The Catalog. The cards slip between the function keys and the computer case.

$7.99. Hired Hand Graphics, 1010 N.E. Dewey Dr., Grant's Pass, OR 97526. (503) 476-6931. PRESS.

CIRCLE 119 ON READER SERVICE CARD

INAGEM AGENDA+

This electronic GEM desktop organizer keeps multiple records of your past, present or future events with a calendar, phonebook, diary and special reminder alarm. Memos can be printed by the week, month or year, and entries can be deleted at any time. **Inagem Agenda+** features full GEM user interface, high-speed search and retrieval of memos by labels, overlapping windows to maximize onscreen information, 3200 characters per day and traveling format memo and phonebook printouts.

$49.95. Inagem Technologies Inc., 6117 Gerard Morisset Avenue, Montreal, Quebec H1M 3J8. Canada. (514) 256-9942. PRESS.

CIRCLE 120 ON READER SERVICE CARD

ACTIVISION GAMES

Zone out in the wacky world of **Tass Times in Tonetown** ($49.95), where being Tass is all that matters—just like being hip in the '60s. This insane adventure game looks at things (and says things) in a new way. You'll meet strange creatures and stranger people. And you'll probably be the strangest of all when you're done.

Shanghai ($44.95), a strategy game using the 144 tiles from Mah Jongg, challenges you to remove matching tiles from a pyramid viewed from the top. Once picked, new tiles are displayed. It sounds elementary, but it's fiendishly addictive. Solitaire, tournament and timed options are available.

With **Gamestar Championship Baseball** ($44.95), you're the manager, batter, pitcher and fielders. An innovative split-screen approach gives you both a total field view and a ground-level batter's perspective.

GBA Championship Basketball: Two-on-Two ($44.95) lets you pass, shoot, dribble or slam dunk the ball. You can go to the playoffs.

Activision Inc., P.O. Box 7826, Mountain View, CA 94039. (415) 960-0410. PRESS.

CIRCLE 121 ON READER SERVICE CARD

TRANSFORM

This advanced modular music system provides all the features used in today's music production, giving you polyphonic high-resolution notes. **TRANSfORM** ($99.95) modules use full GEM implementation, and all modules have instant access to other TRANSfORM modules.

Xtrack ($149.95), an easy-to-use sequencer and recorder for real-time and step input, has unlimited tracks to record on, name and edit. Features include a MIDI event editor and full MIDI implementation.

Compose and arrange music with **Xnotes** ($199.95), a composer/score publisher with high-resolution printouts of your musical scores and page preview for sheet-music layout (including text).

Xsyn ($99.95) features the Sound Editor, which uses click or slide hardware faders and an editor panel simulated by professional graphics on one page, clearly displayed. A Sound Manager controls as many synthesizers as are installed in the GEM desktop. The Real-Time Recorder operates every MIDI keyboard and records and stores 50,000 polyphonic notes. The built-in RAMdisk loses no data after a system reset.

Beam Team, 6100 Adeline Street, Oakland, CA 94608. (415) 658-3208. PRESS.

CIRCLE 125 ON READER SERVICE CARD

continued on page 88

SOFTWARE LIBRARY

Antic type-in listing section includes every full-length program from this issue. Listings are easier to type and proofread, easy to remove and save in a binder if you wish.

► ***POP-UP WINDOW EXPLAINS ERROR MESSAGES***

ELECTRIC CHARLIE! 89

► ***FLASH 8 PICTURES LIGHTNING-FAST***

130XE SLIDE SHOW 93

► ***LINE UP 4 SQUARES BEFORE YOUR ATARI DOES***

GAME OF THE MONTH: QUATRO 94

► ***PRIZES FOR BEST SCREENS***

REBOUND CONSTRUCTION KIT 95

► ***LESSON 11: ATASCII, PEEK AND POKE***

NEW OWNERS COLUMN 97

► ***RATE THE READABILITY OF YOUR WRITING***

SAN FRANCISCO FOGGER 98

ST RESOURCE

► ***GEM-driven readability ratings***

ST SAN FRANCISCO FOGGER 100

► ***ST printer codes automatically***

PRINTSET 109

TYPING SPECIAL ATARI CHARACTERS 86

HOW TO USE TYPO II 87

DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the publisher.

Antic program listings are typeset on the Star's SB-10 printer—from Star Micronics, Inc., 200 Park Avenue, New York, NY 10166.

TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
0123456789        0123456789
```

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below.

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	CTRL ,		CTRL S
	CTRL A		CTRL T
	CTRL B		CTRL U
	CTRL C		CTRL V
	CTRL D		CTRL W
	CTRL E		CTRL X
	CTRL F		CTRL Y
	CTRL G		CTRL Z
	CTRL H		ESC ESC
	CTRL I		ESC CTRL −
	CTRL J		ESC CTRL =
	CTRL K		ESC CTRL
	CTRL L		ESC CTRL *
	CTRL M		CTRL .
	CTRL N		CTRL ;
	CTRL O		CTRL =
	CTRL P		ESC SHIFT CLEAR
	CTRL Q		ESC DELETE
	CTRL R		ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	CTRL ,		CTRL X
	CTRL A		CTRL Y
	CTRL B		CTRL Z
	CTRL C		ESC SHIFT CLEAR
	CTRL D		ESC SHIFT INSERT
	CTRL E		ESC CTRL TAB
	CTRL F		ESC SHIFT TAB
	CTRL G		CTRL .
	CTRL H		CTRL ;
	CTRL I		SHIFT
	CTRL J		ESC CTRL 2
	CTRL K		ESC CTRL DELETE
	CTRL L		ESC CTRL INSERT
	CTRL M		
	CTRL N		
	CTRL O		
	CTRL P		
	CTRL Q		
	CTRL R		
	CTRL S		
	CTRL T		
	CTRL U		
	CTRL V		
	CTRL W		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *hold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key . Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL		STANDARD	
	CTRL F	/	/
	CTRL G	\	SHIFT | +
	CTRL N	_	SHIFT −
	CTRL R	-	−
	CTRL S	+	+

HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads **Antic**'s type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME"[RETURN](Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1:? "TYPO II"

EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";

NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "K":POSITION 11,1:? "TYPO II
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press RETURN and edit line a
   bove.":GOTO 32050
```


An Ad In Antic Reaches More Than 100,000 Serious Atari Users.

Classifieds

STARTING IN MARCH

Antic Classifieds

Classified Manager, Antic–The Atari Resource
524 Second Street, San Francisco, CA 94107
Telephone (415) 957-0886

Name _____ Company _____

Address _____ Phone _____

City/State/Zip _____

MasterCharge/Visa Number _____ Expiration Date _____

Signature _____ Issue(s) Ad To Appear _____

Enclosed is my payment for $ _____ .

NON-COMMERCIAL RATE: $15.00 per line—three (3) line minimum.
COMMERCIAL RATE: $25.00 per line—four (4) line minimum.
BOLDFACE: Add $7.50 per line for boldface words or add $40.00 for the entire ad set in boldface (any number of lines).
TERMS: Prepayment is required. Check, Money Order, Visa or MasterCard is accepted. Make check payable to Antic Publishing.
FORMS: Ads are subject to publisher's approval and **must be TYPED.** One line equals 40 letters and spaces between words. Please underline words to be set in boldface.
GENERAL INFORMATION: Advertisers using Post Office Box numbers in their ads must supply permanent address and telephone numbers. Ad will appear in the next available issue after receipt.
DEADLINE: 90 days prior to cover date (e.g., June 1987 closes March 1, 1987—June issue on sale May 1, 1987).
Clip this coupon, attach to typewritten copy and send with remittance to address above.

HANDWRITTEN COPY WILL NOT BE ACCEPTED.

ST NEW PRODUCTS
continued from page 84

Shelbourne Software Systems' **ST-Pool** ($34.95) lets you select nine different types of racks—even create one and add it to the list. The game also includes three optional random balls and nine different table colors.

Shelbourne Software Systems Inc., 7221 Rising Sun Avenue, Suite #191, Philadelphia, PA 19111. (215) 725-5644. FINAL.

CIRCLE **240** ON READER SERVICE CARD

MEMORY EXPANSION

The **ThoughtSpace TS-1A** ($150) gives you a full megabyte of memory on a 520ST, enabling it to run at its best more often—it won't be starved for workspace by large documents and applications. You now can use more desk accessories simultaneously, set up large RAM disks and run 1040ST software. For 1040ST owners ThoughtSpace has a two-megabyte memory expansion (about $450) that uses inexpensive 256K RAM chips instead of 1Mb chips, plus "secret extras."

ThoughtSpace Development, 2450 Waring Street, No. 21, Berkeley, CA 94704. (415) 845-1415. FINAL, PRESS.

CIRCLE **122** ON READER SERVICE CARD

PUBLISHING PARTNER

With this comprehensive page layout program, you can see text, rules (lines) and columns in their actual sizes and positions on the screen as you type and edit the page. Design, compose and paste up publishing items ranging from newsletters, forms, tables, ads, charts and more. What you see is what you get.

$149.95. SoftLogic Corp., 4129 Old Baumgartner, St. Louis, MO 63129. (314) 894-8608. (Marketed by Shanner International.) BETA.

CIRCLE **124** ON READER SERVICE CARD

TRIMBASE

This easy-to-use, GEM-based, full relational database system can be used without programming and allows for a file to be larger than the capacity of RAM. Among its features are online help, macros, data type-checking, handling of unknown or "special" values and a report generator.

Approximately $134 in Scottish pounds. Talent Computer Systems, Curran Building, 101 St. James Road, Glasgow G4 0NS, Scotland. 041-552 2128. FINAL.

CIRCLE **127** ON READER SERVICE CARD

Haba MailRoom ($74.95), a mailing list manager with search and display capabilities, will merge addresses directly with the HabaWriter word processor to create professional form letters. The mouse-controlled **HabaMerge** ($39.95) mail merge utility prints personalized form letters with documents created by HabaWriter, or combines them with Habadex Phone Book files. The **HabaView** database ($74.95) uses GEM. **HabaCheck** ($74.95) lets you arrange your checkbook four ways.

Haba/Arrays, 6711 Valjean Ave, Van Nuys, CA 91406. (800) 468-4222. PRESS.

FOUR FROM TOMMY

From TommySoftware in West Germany, **LisPas II ST** (about $580 in Deutschmarks) allows easy entrance to artificial intelligence — enter commands and LisPas II responds immediately. LisPas II helps solve the problems of the "LISP jungle" and prvides an easy, learnable user interface featuring all GEM capabilities. The program lets you program your own windows, menus, etc.

Copy-protect your applications via linkable module and master program with **Lock_It**, (about $490) a fully GEM-based copy protection utility which uses a different protection scheme for each program. **Crypt_It** (about $190) allows 10 different levels of encoding or decoding by using individual passwords.

Musix 32 (about $175), a full-featured professional music construction set, lets you write your own music as a standalone or as background sound for your own programs. Cut, Copy, Paste, Merge and printer output are provided.

TommySoftware, Mainzer Landstrasse 147, D-6000 Frankfurt/M.1, West Germany. 069/736917. PRESS.

CIRCLE **261** ON READER SERVICE CARD

PAYDAY

The first of a series of accounting programs, **PayDay** can handle an annual payroll of $21 million and 255 employees. It's completely menu-driven, and context-sensitive help is available via the [HELP] key. Runs on any 520ST or 1040ST with at least one drive, and a hard disk is supported.

$69.95. Crystal Software, P.O. Box 803, Merlin, OR 97532. (503) 479-9516. PRESS.

CIRCLE **116** ON READER SERVICE CARD

The Data Dumpstor ST ($89.95) is a general purpose MIDI system-exclusive data storage program. Store patches, sequences, drum patterns, waveforms, samples and other MIDI information to disk quickly and easily. The Dumpstor accepts MIDI dumps from more than 30 different instruments and keyboards, and features a 310K data storage buffer on the 520ST, or 835K on the 1040ST. Twenty data files can be in memory at the same time, and the GEM is supported. Now you can stop saving drum data from Roland TR707/727 on slow, unreliable cassettes. Use the **TR707 Dumpstor ST** ($64.95) instead, and hold 20 dumps at once.

CIRCLE **268** ON READER SERVICE CARD

THREE FROM STONE AGE

UltraCalc ($24.95), a 40-function scientific calculator, runs as a standalone application or can be installed as a desk accessory. Available with either standard algebraic or Reverse Polish Notation interface, UltraCalc features a 32-bit integer mode and supports color and monochrome systems.

Lewis 123 ($29.95) is a chemistry spreadsheet for anyone needing to sketch covalent bonds. It allows 400 individual elements onscreen at once and uses standard DEGAS printer drivers. Monochrome only.

Encode sensitive data, picture or program files with **Encrypt** ($19.95). Choose from over 2 billion alphanumeric passwords. Encrypt works at 1K per second on floppy drives and even faster on hard disks and RAMdisks.

Stone Age Software Inc., P.O. Box 1216, Amherst, NH 03031. (603) 673-8734. PRESS.

CIRCLE **264** ON READER SERVICE CARD

*New ST product notices are compiled from information provided by the products' manufacturers. **Antic** assumes no responsibility for the accuracy of these notices or the performance of the product. Each mention is followed by a code word indicating that, at press time, **Antic** had seen a FINAL marketable version, near-final BETA, earlier ALPHA, incomplete DEMO, or PRESS release.*

pop-up window explains error messages

ELECTRIC CHARLIE!

Article on page 42

LISTING 1

Don't type the TYPO II Codes!

```
GH 10 REM ELECTRIC CHARLIE!
PB 20 REM BY PATRICK BASS
FW 30 REM (c) 1985, ANTIC PUBLISHING
CQ 40 REM (LINES 10-220 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
MM 70 FN$="D:CHARLIE.EXE":REM THIS IS THE
    NAME OF THE DISK FILE TO BE CREATED
YS 80 GRAPHICS 0:? "      ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? "■TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "■TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? "■COMPLETED■
   "
NG 1000 DATA 1848
AM 1010 DATA 255255000036251036076108036072173009210201220240005173000004240033173000004073001141000004152
TN 1020 DATA 072138072173000004240009032166038032179039076045036032054039104170104168173241255201002208004
RK 1030 DATA 104076025252201001208004104076012252104076190255000000000000000000000000320320320320320320320320672
BV 1040 DATA 072065082076073069033032105115032097099116105118101046000000000120169000141000004141075040169
OX 1050 DATA 000160048141231002140232002173048002133218173049002133219160004024177218105084141072036200177
OJ 1060 DATA 218105000141073036160004024177218105206141074036200177218105000141075036160004024177218105038
FU 1070 DATA 141076036200177218105001141077036160004024177218105078141078036200177218105001141079036160004
VQ 1080 DATA 024177218105005141106036200177218105000141107036160004024177218105051411060362001772181050001411070361690801600361332181322191731060361332201730079
RV 1090 DATA 036133221032057040169003160036252036217037141008002140009002169000133008088076000160000000000
PY 1100 DATA 000000000145146151146146146146146146146146146146146146146146146146146151146133252160252160160160195200
TE 1110 DATA 193210204201197161160160160252162052129146152146146146146146146146146146146146146146146146146146146146152146
ZT 1120 DATA 132252190160160160160160160160160160160160160160160160160160160160160160160160252129146146146146146146146146
PT 1130 DATA 146146146146146146146151146132252197242242239242160163186160160160160160160160252032252252
JX 1140 DATA 193244160204233238229186160160160160160160160160160160160160160160160160160160160
```

```
MC 1390 DATA 072000065082082065089032068
   730770690780830730790780000650820710320
   830840650670750320790860690
QS 1400 DATA 082070076079087000068073086O
   730680690320660890320900690820790000760
   730780690320780790840320700
JK 1410 DATA 079085078068000078069088084O
   320870731520411470420840720790850840320
   070079082000076073078069032
OY 1420 DATA 084079079032076079078071000O
   840650820710690840320680690760690840690
   680000820690840850820780320
XX 1430 DATA 084079032087072069082069063O
   007106508206606507106903207307803206700
   079068069000078079084032078
JO 1440 DATA 085077069082073067000080082O
   790710820650770320840790790320660730710
   000066065068032067072065078
RY 1450 DATA 078069076032035000078079084O
   320760790650680320700790820770650840000
   066082069065075032065066079
PK 1460 DATA 082084000067072065078078069O
   760320730830320790800690780000850780750
   078079087078032068069086073
DZ 1470 DATA 067069000079085084080085084O
   320790780760890000880730790320830890780
   840650880320690820820790820
ER 1480 DATA 000067072065078078069076032O
   780790840320790800690780000850780750780
   790870780320670720650780780
VT 1490 DATA 069076000073078080085084032O
   790780760890000690780680320790701480420
   143043032070073076069000082
JW 1500 DATA 069067079082068032084082085O
   780670650840690680000680690860730670690
   032084073077069079085084000
AD 1510 DATA 067079077077065078068032082O
   690700850830690680000700820650770730780
   071032069082082079082000079
MZ 1520 DATA 085084032079070032082065078O
   710690000700820650770690320790860690820
   820850780000700820650770690
OU 1530 DATA 032067072069067075083085077O
   000680730830750320690820820790820000670
   079077080065082069032069082
JW 1540 DATA 082079082000078079084032073O
   770800760690770690780840690680000780790
   840320690780790850710720320
CT 1550 DATA 082065077000068082073086069O
   320780850770660690820000840790790320770
   650780890320700730760690320
MS 1560 DATA 000068073083075032070085076O
   760000850780750780790870780320690820820
   790820000700730760690320770
UE 1570 DATA 073083077065084067072000066O
   650680320700730760690320780650770690000
   080079073078084032144043217
HM 1580 DATA 043069082082079082000070073O
   760690320760790670750690680000850780750
   078079087078032088073079088
XQ 1590 DATA 068073082069067084079082089O
   320700850760760000700730760690320780790
   840320700790850780680000080
FN 1600 DATA 079073078084032073078086065O
   760730680002240022250020000360
```

LISTING 2

```
0100 ;D1:CHARLIE.M65
0110 ;
0120       .TITLE "Charlie 103186"
0130 ; (c)1987 Antic Publishing
0140 ; Written by Patrick Bass
0150       .IF PASS=0
0160         .INCLUDE #D1:SYSEQU.M65
0170         .INCLUDE #D1:IOMAC.LIB
0180         .ENDIF
0190 PASS =  1
0200 TOTALCODE = ENDCODE-STARTCODE
0210       .OPT NO LIST
0220       .OPT NO MLIST
0230       .PAGE
0240       .INCLUDE #D1:CHAA.M65
0250       .OPT LIST
0260 ENDCODE
0270       *=  $02E0
0280       .WORD STARTCODE
0290       .OPT NO LIST
0300       .END
```

LISTING 3

```
0100 ;D1:CHAA.M65
0110 ;(c)1987 Antic Publishing
0120 ;Written by Patrick Bass
0130 ;Included from D:CHARLIE.M65
0140 ;
0150 ;Load address into pointer.
0160 ;Example:  LEA.W  LABEL,POINTER
0170 ;
0180       .MACRO LEA.W
0190       LDA # <%1
0200       LDY # >%1
0210       STA %2
0220       STY %2+1
0230       .ENDM
0240 ;
0250 ;Move a single byte in memory.
0260 ;Example:  MOVE.B  SOURCE,DEST
0270 ;
0280       .MACRO MOVE.B
0290       LDA %1
0300       STA %2
0310       .ENDM
0320 ;
0330 ;Move a single word in memory.
0340 ;Example:  MOVE.W  SOURCE,DEST
0350 ;
0360       .MACRO MOVE.W
0370        MOVE.B  %1,%2
0380        MOVE.B  %1+1,%2+1
0390       .ENDM
0400 ;
0410 ;Add a WORD value to a pointer
0420 ;Example: ADD.W   5,AMOUNT
0430 ;
0440       .MACRO ADD.W
0450       CLC
0460       LDA # <%1
0470       ADC %2
0480       STA %2
0490       LDA # >%1
0500       ADC %2+1
0510       STA %2+1
0520       .ENDM
0530 ;
0540 ;Fix Proper master pointers.
0550 ;Ex: FIX   BASE,OFFSET,POINTER
0560 ;
0570       .MACRO FIX
0580       LDY #4
0590       CLC
0600       LDA (%1),Y
0610       ADC # <%2
0620       STA %3
0630       INY
0640       LDA (%1),Y
0650       ADC # >%2
0660       STA %3+1
0670       .ENDM
0680 ;
0690 ;-------------------------------
0700 ; Constants
0710 ;
0720 CTRL.SHIFT.ESCAPE = $80+$40+$1C
0730 POINTER.A = $DA ;Over here!
0740 POINTER.B = $DC ;Over there!
0750 P.A =    POINTER.A
0760 P.B =    POINTER.B
0770 ;
0780 STARTCODE = $2400 ;Gonzo
0790 SDLSTL = $0230   ;Dlist shadow
0800 VKEYBD = $0208   ;Vec: Keyboard
0810 MEMLO = $02E7    ;Down in Dixie
0820 WARMST = $08     ;Sugar Bear
0830 BASIC.WARM.START = $A000
0840 KBCODE = $D209   ;Whatz pressed?
0850 OPTION.BYTE = $FFF1 ;Whos there?
0860 XL.XE.SERIES = 2 ;Type of type
0870 STOPLN = $BA     ;Where stopped.
0880 ERRSAVE = 195    ;Last err known
0890 LBUFF = $0580    ;BASIC buildnum
0900 INBUFF = $F3     ;Here too
0910 CIX =    $F2     ;Character index
0920 FR0 =    $D4     ;Float zero
0930 IFP =    $D9AA   ;Integer->Float
0940 FASC =   $D8E6   ;Float->ATASCII
0950 ;
```

```
0960 WINDOW.FLAG = $0400 ;Window on?
0970 ;
0980 ; Offsets for printable lines.
0990 WINDOW.OFFSET = [40*2]+4
1000 REPORT.OFFSET = [40*5]+6
1010 ERROR.OFFSET = [40*7]+14
1020 LINE.OFFSET = [40*8]+14
1030 ;...and contractions.
1040 W.O =   WINDOW.OFFSET
1050 R.O =   REPORT.OFFSET
1060 E.O =   ERROR.OFFSET
1070 L.O =   LINE.OFFSET
1080 ;
1090 ;--------------------------
1100 ;So the program code starts
1110 ; right here, and jumps.
1120     *=  STARTCODE
1130     JMP SETUP
1140 ;
1150 ;- - - - - - - - - - - - - -
1160 ACCESSORY
1170 ;Save current acc.
1180 ;Was key press CTRL-ALT-ESC?
1190 ;Branch over if it was...
1200     PHA
1210     LDA KBCODE
1220     CMP #CTRL.SHIFT.ESCAPE
1230     BEQ SETSTART
1240 ;
1250 ;Else not right char, is
1260 ; window currently up?
1270 ;Branch out if not... else erase
1280     LDA WINDOW.FLAG
1290     BEQ SETX
1300 ;
1310 SETSTART
1320 ;Toggle window-on flag.
1330     LDA WINDOW.FLAG
1340     EOR #1
1350     STA WINDOW.FLAG
1360 ;
1370 ;Stack rest of registers.
1380     TYA
1390     PHA
1400     TXA
1410     PHA
1420 ;
1430 ;Is window coming up?
1440 ;Branch if not...
1450     LDA WINDOW.FLAG
1460     BEQ SETOFF
1470 ;
1480 ;Else open, work the window.
1490     JSR OPEN.WINDOW
1500     JSR WORK.WINDOW
1510     JMP SETX1
1520 SETOFF
1530     JSR CLOSE.WINDOW
1540 SETX1
1550     PLA
1560     TAX
1570     PLA
1580     TAY
1590 SETX
1600 ;Folks, I know all about
1610 ;indirect jumps.  MAC65 would
1620 ; not let me grab the old
1630 ;VKEYBD vector. Don't know why.
1640 ;
1650     LDA OPTION.BYTE
1660     CMP #XL.XE.SERIES
1670     BNE MAYBE.THE.1200XL
1680 ;
1690     PLA
1700     JMP $FC19
1710 ;
1720 MAYBE.THE.1200XL
1730     CMP #1
1740     BNE ITS.AN.800
1750 ;
1760     PLA
1770     JMP $FC0C
1780 ;
1790 ITS.AN.800
1800     PLA
1810     JMP $FFBE
1820 ;
1830 ;------------------
1840 W.SCREEN
1850     .WORD 0      ;Window
1860 R.SCREEN
1870     .WORD 0      ;Report Line
1880 E.SCREEN
1890     .WORD 0      ;Error Line
1900 L.SCREEN
1910     .WORD 0      ;Line Line
1920 C.MESS
1930     .BYTE "       CHARLIE!"
1940     .BYTE " is active.",0
1950 C.SCREEN
1960     .WORD 0      ;CHAS Line
1970 ;
1980 ;- - - - - - - - - - - - -
1990 SETUP
2000 ;Don't listen to anybody.
2010 ;Make sure window is down...
2020 ;...and we print normal text.
2030 ; Point MEMLO at $3000.
2040 ;Build new pointers into window
2050 ;Tell 'em CHARLIEs active.
2060 ;Replace Keyboard Vector
2070 ;Start listening again...
2080 ;...and initialize BASIC.
2090 ;
2100     SEI
2110     LDA #0
2120     STA WINDOW.FLAG
2130     STA REVERSE.FLAG
2140      LEA.W  $3000,MEMLO
2150 ;
2160      MOVE.W  SDLSTL,POINTER.A
2170      FIX   P.A,W.O,W.SCREEN
2180      FIX   P.A,R.O,R.SCREEN
2190      FIX   P.A,E.O,E.SCREEN
2200      FIX   P.A,L.O,L.SCREEN
2210      FIX   P.A,5,C.SCREEN
2220 ;
2230      LEA.W  C.MESS,POINTER.A
2240      MOVE.W  C.SCREEN,POINTER.B
2250     JSR WIND.LINE.OUT
2260 ;
2270      LEA.W  ACCESSORY,VKEYBD
2280     LDA #0
2290     STA WARMST
2300     CLI
2310     JMP BASIC.WARM.START
2320 ;
2330 ;- - - - - - - - - - - - -
2340     .WORD 0,0,0
2350 WINDOW
2360     .BYTE "
2370 WIND.W = *-WINDOW
2380     .BYTE "
2390     .BYTE "
2400     .BYTE "
2410     .BYTE "
2420     .BYTE "
2430     .BYTE "
2440     .BYTE "
2450     .BYTE "
2460     .BYTE "
2470 WIND.H = [*-WINDOW-1]/WIND.W
2480     .WORD 0
2490 W.BUFF
2500     *=  *+[*-WINDOW]
2510     .WORD 0
2520 ;
2530 ;--------------------------
2540 OPEN.WINDOW
2550     JSR INIT.OPEN ;Set pointers
2560 ;
2570     LDX #WIND.H
2580 OW1
2590     LDY #0
2600 O1FROM
2610     LDA $1234,Y ;Copy the screen
2620     STA $1234,Y ;to buffer.
2630 ;
2640     LDA $1234,Y ;Copy the window
2650     JSR ADJUST  ;in screen code
2660     STA $1234,Y ;to the screen.
2670 ;
2680     INY
2690     CPY #WIND.W
2700     BCC O1FROM
2710 ;
2720      ADD.W  40,O1FROM+1
2730      ADD.W  WIND.W,O1FROM+4
2740      ADD.W  WIND.W,O1FROM+7
2750      ADD.W  40,O1FROM+13
2760     DEX
2770     BPL OW1
2780 ;
2790     RTS
2800 ;
2810 ;- - - - - - - - - - - - - -
2820 INIT.OPEN
```

continued on next page

```
2830       MOVE.W  W.SCREEN,O1FROM+1
2840       LEA.W  W.BUFF,O1FROM+4
2850 ;
2860       LEA.W  WINDOW,O1FROM+7
2870       MOVE.W  W.SCREEN,O1FROM+13
2880 ;
2890       RTS
2900 ;
2910 ;----------------------------
2920 CLOSE.WINDOW
2930       JSR INIT.CLOSE
2940 ;
2950       LDX #WIND.H
2960 CW1
2970       LDY #0
2980 CFROM
2990       LDA $1234,Y :Copy buffer
3000       STA $1234,Y ;back to screen
3010 ;
3020       INY
3030       CPY #WIND.W
3040       BCC CFROM
3050 ;
3060        ADD.W  WIND.W,CFROM+1
3070        ADD.W  40,CFROM+4
3080       DEX
3090       BPL CW1
3100 ;
3110       RTS
3120 ;
3130 ;- - - - - - - - - - - - - - -
3140 INIT.CLOSE
3150        LEA.W  W.BUFF,CFROM+1
3160        MOVE.W  W.SCREEN,CFROM+4
3170       RTS
3180 ;
3190 ;----------------------------
3200 ADJUST
3210       PHA
3220       AND #$80
3230       STA ADJUST.BIT
3240       PLA
3250       AND #$7F
3260 ;
3270       CMP #32       ;less than 32?
3280       BCS AJ1       ;Branch if not.
3290 ;
3300       ADC #64       ;Else add 64
3310       BCC AJX       ;and split.
3320 AJ1
3330       CMP #96       ;Is char >=96?
3340       BCS AJX       ;branch if yes
3350 ;
3360       SEC           ;Else 31>chr<96
3370       SBC #32
3380 AJX
3390       ORA ADJUST.BIT
3400       RTS
3410 ;
3420 ADJUST.BIT
3430       .BYTE 0
3440 ;
3450 ;-------------------------
3460 FIX.LBUFF
3470       LDY #$FF
3480 FX1
3490       INY
3500       LDA (INBUFF),Y
3510       BPL FX1
3520 ;
3530       AND #$7F
3540       STA (INBUFF),Y
3550       INY
3560       LDA #0
3570       STA (INBUFF),Y
3580       RTS
3590 ;
3600 ;-------------------------
3610 WORK.WINDOW
3620 ;Set to print in reverse...
3630 ;...and make FR0/CIX zero.
3640       LDA #$80
3650       STA REVERSE.FLAG
3660        LEA.W  0,FR0
3670        MOVE.B  FR0,CIX
3680 ;
3690 ;We print the value in ERRSAVE
3700        MOVE.B  ERRSAVE,FR0
3710 ;
3720 ;Integer to float...
3730 ;...Float to ATASCII.
3740 ;Place zero on end, print it.
3750       JSR IFP
3760       JSR FASC
3770       JSR FIX.LBUFF
3780        LEA.W  LBUFF,POINTER.A
3790        MOVE.W  E.SCREEN,POINTER.B
3800       JSR WIND.LINE.OUT
3810 ;
3820 ;Ditto with the value in STOPLN
3830        MOVE.W  STOPLN,FR0
3840       LDA #0
3850       STA CIX
3860       JSR IFP
3870       JSR FASC
3880       JSR FIX.LBUFF
3890        LEA.W  LBUFF,POINTER.A
3900        MOVE.W  L.SCREEN,POINTER.B
3910       JSR WIND.LINE.OUT
3920 ;
3930 ;- - - - - - - - - - - - - - -
3940 ;Now, to pick up proper error
3950 ;text string, first get error
3960 ;number, and compare it against
3970 ;each entry in a table of known
3980 ;error codes.
3990 ;
4000       LDA ERRSAVE
4010       LDX #NUM.ERR.ENTRIES-1
4020 WW1
4030       CMP ERROR.TABLE,X ;match?
4040       BEQ WW2       ;branch on match
4050 ;
4060       DEX           ;else next
4070       BPL WW1       ;until finis.
4080       LDX #43       ;NO MATCH
4090 WW2
4100 ;At this point, a match was
4110 ;found in the table, and the
4120 ;X register contains the number
4130 ;of the error entry.
4140       TXA
4150       ASL A         ;pointerize it.
4160       TAX
4170 ;
4180 ;Now pick up the address of the
4190 ;coresponding error string and
4200 ;place inside POINTER.A
4210 ;Then print the string out.
4220       LDA ERROR.JUMP,X
4230       STA POINTER.A
4240       LDA ERROR.JUMP+1,X
4250       STA POINTER.A+1
4260        MOVE.W  R.SCREEN,POINTER.B
4270       JSR WIND.LINE.OUT
4280 WWX
4290       RTS
4300 ;
4310 ;----------------------------
4320 WIND.LINE.OUT
4330       LDY #0
4340 WL1
4350       LDA (POINTER.A),Y
4360       BEQ WLX
4370 ;
4380       JSR ADJUST
4390       ORA REVERSE.FLAG
4400       STA (POINTER.B),Y
4410       INY
4420       BNE WL1
4430 WLX
4440       RTS
4450 ;
4460 REVERSE.FLAG
4470       .BYTE 0
4480 ;
4490 ;----------------------------
4500 ;A Table of all known error
4510 ;code numbers. Searched top down
4520 ;
4530 ERROR.TABLE
4540       .BYTE 2,3,4,5,6
4550       .BYTE 7,8,9,10,11
4560       .BYTE 12,13,14,15,16
4570       .BYTE 17,18,19,20,21
4580 ;
4590       .BYTE 128,129,130,131,132
4600       .BYTE 133,134,135,136,137
4610       .BYTE 138,139,140,141,142
4620       .BYTE 143,144,145,146,147
4630 ;
4640       .BYTE 160,161,162,163,164
4650       .BYTE 165,166,167,168,169
4660       .BYTE 170,171
4670 NUM.ERR.ENTRIES = *-ERROR.TABLE
4680 ;
4690 ;A table of all known error
4700 ;message addresses, in the same
```

```
4710 ;order as the table above.
4720 ;
4730 ERROR.JUMP
4740       .WORD E2,E3,E4,E5
4750       .WORD E6,E7,E8,E9
4760       .WORD E10,E11,E12
4770       .WORD E13,E14,E15
4780       .WORD E16,E17,E18
4790       .WORD E19,E20,E21
4800 ;
4810       .WORD E128,E129,E130
4820       .WORD E131,E132,E133
4830       .WORD E134,E135,E136
4840       .WORD E137,E138,E139
4850       .WORD E140,E141,E142
4860       .WORD E143,E144,E145
4870       .WORD E146,E147
4880 ;
4890       .WORD E160,E161,E162
4900       .WORD E163,E164,E165
4910       .WORD E166,E167,E168
4920       .WORD E169,E170,E171
4930 ;
4940 ;----------------------------
4950 ;The error messages themselves.
4960 ;
4970 E2   .BYTE "OUT OF MEMORY",0
4980 E3   .BYTE "VALUE ERROR",0
4990 E4   .BYTE "TOO MANY VARIABLES",0
5000 E5   .BYTE "STRING TOO LONG",0
5010 E6   .BYTE "END OF DATA",0
5020 E7   .BYTE "NUMBER TOO LARGE",0
5030 E8   .BYTE "TYPE MISMATCH",0
5040 E9   .BYTE "ARRAY DIMENSION",0
5050 E10  .BYTE "ARG STACK OVERFLOW",0
5060 E11  .BYTE "DIVIDE BY ZERO",0
5070 E12  .BYTE "LINE NOT FOUND",0
5080 E13  .BYTE "NEXT WITHOUT FOR",0
5090 E14  .BYTE "LINE TOO LONG",0
5100 E15  .BYTE "TARGET DELETED",0
5110 E16  .BYTE "RETURN TO WHERE?",0
5120 E17  .BYTE "GARBAGE IN CODE",0
5130 E18  .BYTE "NOT NUMERIC",0
5140 E19  .BYTE "PROGRAM TOO BIG",0
5150 E20  .BYTE "BAD CHANNEL #",0
5160 E21  .BYTE "NOT LOAD FORMAT",0
5170 ;
5180 E128  .BYTE "BREAK ABORT",0
5190 E129  .BYTE "CHANNEL IS OPEN",0
5200 E130  .BYTE "UNKNOWN DEVICE",0
5210 E131  .BYTE "OUTPUT ONLY",0
5220 E132  .BYTE "XIO SYNTAX ERROR",0
5230 E133  .BYTE "CHANNEL NOT OPEN",0
5240 E134  .BYTE "UNKNOWN CHANNEL",0
5250 E135  .BYTE "INPUT ONLY",0
5260 E136  .BYTE "END OF FILE",0
5270 E137  .BYTE "RECORD TRUNCATED",0
5280 E138  .BYTE "DEVICE TIMEOUT",0
5290 E139  .BYTE "COMMAND REFUSED",0
5300 E140  .BYTE "FRAMING ERROR",0
5310 E141  .BYTE "OUT OF RANGE",0
5320 E142  .BYTE "FRAME OVERRUN",0
5330 E143  .BYTE "FRAME CHECKSUM",0
5340 E144  .BYTE "DISK ERROR",0
5350 E145  .BYTE "COMPARE ERROR",0
5360 E146  .BYTE "NOT IMPLEMENTED",0
5370 E147  .BYTE "NOT ENOUGH RAM",0
5380 ;
5390 E160  .BYTE "DRIVE NUMBER",0
5400 E161  .BYTE "TOO MANY FILES",0
5410 E162  .BYTE "DISK FULL",0
5420 E163  .BYTE "UNKNOWN ERROR",0
5430 E164  .BYTE "FILE MISMATCH",0
5440 E165  .BYTE "BAD FILE NAME",0
5450 E166  .BYTE "POINT ERROR",0
5460 E167  .BYTE "FILE LOCKED",0
5470 E168  .BYTE "UNKNOWN XIO",0
5480 E169  .BYTE "DIRECTORY FULL",0
5490 E170  .BYTE "FILE NOT FOUND",0
5500 E171  .BYTE "POINT INVALID",0
```

flash 8 pictures lightning-fast

130XE SLIDE SHOW

Article on page 38

LISTING 1

Don't type the TYPO II Codes!

```
QF 10 REM 130 XE BANK SWITCHING DEMO
IV 20 REM BY BILL MARQUARDT
HA 30 REM (c) 1987, ANTIC PUBLISHING
ZC 100 GRAPHICS 18
VC 110 GOSUB 380
AN 120 POKE PORTB,193+MODE+BANK0
VW 130 POKE DL+4,0:POKE DL+5,64
FF 140 FILLER=33:GOSUB 340
BW 150 POKE PORTB,193+MODE+BANK1
FW 160 FILLER=34:GOSUB 340
DD 170 POKE PORTB,193+MODE+BANK2
GN 180 FILLER=35:GOSUB 340
EK 190 POKE PORTB,193+MODE+BANK3
GL 200 FILLER=36:GOSUB 340
AM 210 POKE PORTB,193+MODE+BANK0
HY 220 FOR D=1 TO 100:NEXT D
BT 230 POKE PORTB,193+MODE+BANK1
IC 240 FOR D=1 TO 100:NEXT D
DA 250 POKE PORTB,193+MODE+BANK2
IG 260 FOR D=1 TO 100:NEXT D
EH 270 POKE PORTB,193+MODE+BANK3
IK 280 FOR D=1 TO 100:NEXT D
MU 290 GOTO 210
GJ 300 POKE PORTB,NORML
EA 310 POKE DL+5,INT(SC/256)
KW 320 POKE DL+4,SC-(PEEK(DL+5)*256)
NY 330 END
GL 340 FOR I=0 TO 239
CV 350 POKE NUSCREEN+I,FILLER
GF 360 NEXT I
ZN 370 RETURN
ND 380 PORTB=54017
OE 390 NORML=PEEK(PORTB)
UC 400 DL=PEEK(560)+PEEK(561)*256
C5 410 SC=PEEK(DL+4)+256*PEEK(DL+5)
QB 420 NUSCREEN=16384
YO 430 MODE=0
VH 440 BANK0=0:BANK1=4:BANK2=8:BANK3=12
ZK 450 RETURN
```

LISTING 2

```
ZD 100 REM 130XE BANK SWITCHING DEMO
TT 110 REM BY BILL MARQUARDT
JT 120 REM (c) 1987, ANTIC PUBLISHING
SM 130 GRAPHICS 0
VO 140 DIM F1$(15),F2$(15)
XU 150 DIM F3$(15),F4$(15)
AA 160 DIM F5$(15),F6$(15)
CG 170 DIM F7$(15),F8$(15)
```

continued on next page

```
HD 180 F1$="D:F1":F2$="D:F2"
LV 190 F3$="D:F3":F4$="D:F4"
PU 200 F5$="D:F5":F6$="D:F6"
UM 210 F7$="D:F7":F8$="D:F8"
UY 220 DIM F$(15)
PN 230 GRAPHICS 15+16
MU 240 PORTB=54017
UK 250 DL=PEEK(560)+PEEK(561)*256
YS 260 MODE=0
EZ 270 BANK0=0:BANK1=4
US 280 BANK2=8:BANK3=12
BC 290 POKE PORTB,193+MODE+BANK0
HQ 300 POKE DL+4,16:POKE DL+5,64
JZ 310 FOR I=6 TO 196
UO 320 POKE DL+I,14:NEXT I
AN 330 POKE DL+107,78
JV 340 POKE DL+108,0
WY 350 POKE DL+109,80
BQ 360 F$=F1$:HI=64:GOSUB 740
FA 370 F$=F2$:HI=96:GOSUB 740
CE 380 POKE PORTB,193+MODE+BANK1
CX 390 F$=F4$:HI=64:GOSUB 740
EW 400 F$=F3$:HI=96:GOSUB 740
CU 410 POKE PORTB,193+MODE+BANK2
CI 420 F$=F5$:HI=64:GOSUB 740
GD 430 F$=F6$:HI=96:GOSUB 740
ED 440 POKE PORTB,193+MODE+BANK3
EA 450 F$=F8$:HI=64:GOSUB 740
GS 460 F$=F7$:HI=96:GOSUB 740
BA 470 POKE PORTB,193+MODE+BANK0
XW 480 NUSCR=16384:HI=64:GOSUB 630
AN 490 NUSCR=NUSCR+8192
XC 500 HI=96:GOSUB 630
BS 510 POKE PORTB,193+MODE+BANK1
UH 520 GOSUB 630
RE 530 NUSCR=16384
VU 540 HI=64:GOSUB 630
DD 550 POKE PORTB,193+MODE+BANK2
UP 560 GOSUB 630
AK 570 NUSCR=NUSCR+8192
XS 580 HI=96:GOSUB 630
EO 590 POKE PORTB,193+MODE+BANK3
UE 600 GOSUB 630
RB 610 NUSCR=16384
JH 620 HI=64:GOSUB 630:GOTO 470
GF 630 REM SET COLOR REGISTERS
QD 640 POKE 712,PEEK(NUSCR+7680+16)
TQ 650 POKE 708,PEEK(NUSCR+7681+16)
VG 660 POKE 709,PEEK(NUSCR+7682+16)
SR 670 POKE 710,PEEK(NUSCR+7683+16)
FU 680 POKE DL+5,HI
HW 690 POKE DL+109,HI+16
VU 700 TIME=100:P=PADDLE(0)
US 710 IF P<>228 THEN TIME=P*10
IP 720 FOR DELAY=1 TO TIME:NEXT DELAY
ZJ 730 RETURN
KE 740 IO=848:REM FILE LOADER
VQ 750 OPEN #1,4,0,F$
EQ 760 POKE IO+2,7
JM 770 POKE IO+4,16
JA 780 POKE IO+5,HI
GD 790 POKE IO+8,4
IY 800 POKE IO+9,30
TE 810 X=USR(ADR("hhh▣LV@"),16)
LI 820 CLOSE #1
ZK 830 RETURN
```

game of the month

QUATRO

Article on page 10

LISTING 1

Don't type the TYPO II Codes!

```
MP 2 REM QUATRO
NC 4 REM BY JEREMY BIRN
GI 6 REM (c) 1987, ANTIC PUBLISHING
LV 10 GRAPHICS 7:POKE 708,0:POKE 709,0:PO
   KE 710,0:A1=9
PI 20 DIM D(3,1),B(9,7),P(1),H(6),P$(42)
NO 30 DL=PEEK(560)+PEEK(561)*256:POKE DL+
   85,71:POKE DL+88,12
MO 40 ? "      QUATRO":POKE 752,1:? "
         BY JEREMY BIRN"
EY 50 ? "          ANTIC MAGAZINE '87"
LB 60 GOSUB 30000:REM CALL UDLI
NF 65 POKE 708,14:POKE 709,0:POKE 710,190

FZ 70 POKE CA,26:POKE CB,26
VS 80 POKE SET+82,190:POKE SET+83,190
AM 90 RESTORE
JH 100 FOR T=1 TO 6:FOR Y=0 TO 5:X=T*16+Y
   *2+50:POKE SET+T*13+Y-5,X
DP 110 POKE SET+T*13-Y-6,X:NEXT Y:NEXT T
DB 120 FOR T=0 TO 3:READ X,Y:D(T,0)=X:D(T
   ,1)=Y:NEXT T:DATA 1,1,0,1,-1,1,-1,0
LB 130 P$="  RANDOM STICK 1 STICK 2COMPUT
   ERBLACKWHITE":P(0)=2:P(1)=4
QE 140 ? #6;CHR$(125):? CHR$(125);:POKE S
   ET+82,0:POKE SET+83,0:POKE DL+85,198
KO 150 POKE DL+88,134:POKE DL+89,144:POKE
    DL+90,130:POKE SET+83,190:POKE 77,0
YL 160 GOSUB 490:X=P(0)*8:? " BLACK: ";P$
   (X-7,X);"      WHITE: ";:X=P(1)*8
CV 170 ? P$(X-7,X):? "ADJUST WITH JOYSTIC
   K: TRIGGER TO START":? CHR$(29);
QR 180 POKE SET+81-A,0:POKE SET+A+80,164
YP 190 K=STICK(0):P=PEEK(53279):IF  NOT S
   TRIG(0) OR P=6 THEN 230
WM 200 IF K=13 OR K=14 OR P=5 THEN GOSUB
   490:A= NOT A:GOTO 180
FK 210 IF K<14 OR P=3 THEN K=P(A):K=K+1:K
   =K-4*(K=5):P(A)=K:GOTO 160
PG 220 GOTO 190
YG 230 POKE SET+A+80,0:? CHR$(29);CHR$(15
   6);:FOR Y=1 TO 6:H(Y)=8:NEXT Y:N=1
SH 240 POKE DL+90,140:POKE SET+83,0:POKE
   DL+89,135:POKE SET+82,178
IL 250 A=PEEK(53770)>127:FOR X=0 TO 9:FOR
    Y=0 TO 7:B(X,Y)=0:NEXT Y:NEXT X
NE 260 ? :? CHR$(28);:GOSUB 680:IF N=49 T
   HEN ? "  A TIE GAME!!!":GOTO 540
WM 270 POKE SET+80+A,164:? N;". ";P$(33+5
   *A,37+5*A);" TURN.";
QP 280 B=P(A)-2:T=0:ON P(A) GOSUB 350,410
   ,410,560
WV 290 X=H(T):H(T)=X-1:COLOR 2-A:FOR D=X*
   20-16 TO X*20-1:PLOT D,T*13-10
TA 300 DRAWTO D,T*13-1:NEXT D:Y=T:B(X,Y)=
   A+1
KY 310 FOR D=0 TO 3:GOSUB 360:IF R<3 THEN
    NEXT D:GOTO 330
AY 320 FOR T=1 TO 5:? CHR$(30);:NEXT T:?
   "WINS!!!";:T=0:R=T:COLOR 3:GOTO 500
LH 330 POKE SET+80+A,0:A= NOT A:N=N+1:GOT
   O 260
JE 340 T=INT(6*RND(1))+1:IF H(T) THEN RET
   URN
UV 350 POKE 53279,4:GOTO 340
UA 360 T=1:R=0
VV 370 IF B(X+T*D(D,0),Y+T*D(D,1))=A+1 TH
   EN T=T+1:R=R+1:GOTO 370
WE 380 T=-1
EB 390 IF B(X+T*D(D,0),Y+T*D(D,1))=A+1 TH
   EN T=T-1:R=R+1:GOTO 390
ZA 400 RETURN
NY 410 T=T+1:IF  NOT H(T) THEN 410
TS 420 R=SET+T*13-6:BN=PEEK(R):X=4:D=1
```

```
GM 430 X=X+1:IF X=5 THEN POKE R,255*D:POK
   E R+1,255*D:X=0:D= NOT D
ZK 440 IF PEEK(53279)=5 THEN POP :POKE R,
   BN:POKE R+1,BN:GOTO 140
HQ 450 POKE 77,0:K=STICK(B):IF STRIG(B) A
   ND K=15 THEN 430
GJ 460 POKE R,BN:POKE R+1,BN:K=(K=14):K=K
   *2-1:IF  NOT STRIG(B) THEN RETURN
ZS 470 T=T-K:T=T+6*( NOT T):T=T-6*(T=7):I
   F  NOT H(T) THEN 470
NZ 480 GOTO 420
FB 490 FOR C=15 TO 0 STEP -1:SOUND 0,121,
   10,C:NEXT C:RETURN
EM 500 POKE 710,15* NOT A:FOR BN=-1 TO 1
   STEP 2:T=(BN=1)
DI 510 B=X+T*D(D,0):K=Y+T*D(D,1):IF B(B,K
   )<>A+1 THEN NEXT BN:GOTO 540
RH 520 T=T+BN:FOR N=B*20-13 TO B*20-4:PLO
   T N,K*13-8:DRAWTO N,K*13-3:NEXT N
HB 530 GOSUB 490:GOTO 510
RO 540 POKE 77,0:IF STRIG(0) AND PEEK(532
   79)=7 THEN POKE 710,PEEK(20):GOTO 540
NJ 550 POKE 710,190:GOTO 140
MC 560 B=0:BN=-10^11:P=B:IF N<3 THEN 350
AE 570 GOSUB 680:POKE 53279,P:C=0:P=P+1:I
   F P=7 THEN T=B:RETURN
PW 580 X=H(P):Y=P:IF  NOT X THEN 570
FE 590 FOR D=0 TO 3:GOSUB 360:C=C+R:IF R=
   2 THEN C=C+20
JP 600 IF R>2 THEN T=P:RETURN
DX 610 NEXT D:A= NOT A:FOR D=0 TO 3:GOSUB
    360:C=C+R:IF R=2 THEN C=C+10
DC 620 IF R>2 THEN C=C+SET
XH 630 NEXT D:A= NOT A:IF X=1 OR N<6 THEN
    660
BA 640 X=X-1:FOR D=0 TO 3:GOSUB 360:C=C-2
   00*(R>2):NEXT D:A= NOT A
PB 650 FOR D=0 TO 3:GOSUB 360:C=C-3000*(R
   >2):NEXT D:A= NOT A
YR 660 IF C>BN THEN BN=C:B=P
QM 670 GOTO 570
ZP 680 IF PEEK(53279)>5 THEN RETURN
VG 690 POP :POP :GOTO 140
OP 25000 REM THE UNIVERSAL DLI:
IO 30000 RESTORE 30040:FOR T=1536 TO 1568
   :READ D:POKE T,D:NEXT T
XR 30010 READ CA,CB:SET=T:D=PEEK(560)+PEE
   K(561)*256+2:POKE D,240:N=0:POKE 512,1
   :POKE 513,6
QR 30020 D=D+1:POKE SET+N,PEEK(712):T=PEE
   K(D):IF T=65 THEN POKE 1556,33+N:POKE
   54286,192:RETURN
QT 30030 T=T-128*(T>127):POKE D,T+128:POK
   E SET+N,PEEK(712):N=N+1:D=D+2*(T>64):G
   OTO 30020
LB 30040 DATA 33,72,138,72,174,0,6,189,0,
   6,141,10,212,141,24,208,141,26
KD 30050 DATA 208,224,152,208,2,162,32,23
   2,142,0,6,104,170,104,64,1550,1553
```

prizes for best screens

REBOUND CONSTRUCTION KIT

Article on page 44

LISTING 1

Don't type the TYPO II Codes!

```
JJ 1 REM REBOUND SCREENMAKER
DY 2 REM BY J.D. CASTEN
GF 3 REM (c) 1987, ANTIC PUBLISHING
JV 4 BRK=1:IF PEEK(53279)=5 THEN BRK=0
II 5 GOTO 1000
GN 100 FOR I=0 TO 1 STEP 0:FOR J=0 TO 5:P
   OKE 756,M+J*2:OX=X:OY=Y:S=PEEK(632):X=
   X+X(S):Y=Y+I(S):D=1
BD 110 IF X<0 OR X>19 THEN X=19-OX
TP 111 IF Y<0 OR Y>22 THEN Y=22-OY
HT 112 OT=T+2*(X<>OX OR Y<>OY)
CL 120 POKE 5,X:POKE 6,Y:LOCATE X,Y,Z:T=P
   EEK(644):IF  NOT T AND Z=32 AND OT THE
   N COLOR C:PLOT X,Y:GOTO 190
OS 125 IF  NOT T AND OT THEN COLOR 32:PLO
   T X,Y
PB 190 IF PEEK(764)<>255 THEN 200
YP 191 G=PEEK(53279):IF G=7 THEN NEXT J:N
   EXT I
SP 192 OP=P:P=P+(G=5)-(G=3):POKE 77,0:IF
   P<0 OR P>19 THEN P=19-OP
WA 193 IF G=6 THEN Q=1-Q:GOSUB 600+Q
HP 194 POKE 1678,48+P*8:LOCATE P,23,C:IF
   D THEN FOR D=1 TO 80:NEXT D:D=0
QU 195 GOTO 191
ZT 200 GET #1,K:G=K:IF K=125 THEN ? #6;"■
   ":X=0:Y=0:GOSUB 600+Q:NEXT J:NEXT I
MY 201 IF K>32 AND K<38 THEN 300
FO 202 IF K=19 OR K=12 THEN I=4+4*(K=19):
   GOTO 700
AO 203 IF K=5 THEN U=USR(58484)
RE 215 G=(K<>32 AND K>0 AND K<>126)
BC 220 POSITION X,Y:? #6;CHR$(K-G):X=X+1:
   GOTO 110
IB 300 GOSUB 350:RESTORE 9368+K:READ D,B$
   :? #6;B$:G=PEEK(D):GH=INT(G/16):GL=G-G
   H*16
YB 305 J=PEEK(632):G=GL:GL=GL-I(J):IF GL<
   0 OR GL>15 THEN GL=15-G
KB 306 G=GH:GH=GH+X(J):IF GH<0 OR GH>15 T
   HEN GH=15-G
SL 307 POKE D,GL+GH*16:IF PEEK(644) THEN
   305
BZ 308 GOSUB 360:GOTO 100
WZ 350 POSITION 1,23:? #6;"
       ":POKE 1683,245:POKE 1678,0:POKE 5
   ,22:POSITION 1,23:RETURN
XW 360 POKE 1683,244:POKE 1678,48+P*8:GOT
   O 600+Q
NO 400 GOSUB 600:POKE 559,62
VS 401 POKE 1592,120:POKE 1598,0:C=162:P=
   1:Q=0
LV 404 GOTO 100
UD 500 G=0:B$="D:":POKE 87,0:POSITION 27,
   11:POKE 764,255
HU 505 POKE 694,0:POKE 702,64:GET #1,K:IF
    K=126 AND G>1 THEN G=G-1:B$=B$(1,G):?
   "■";:GOTO 505
BA 506 IF K=126 AND G THEN G=0:B$="D:":?
   "■";:GOTO 505
MM 507 IF K=155 THEN POKE 87,1:RETURN
OZ 508 IF G=12 OR K=126 THEN 505
NA 510 IF K<46 OR K>90 THEN 505
HZ 515 G=G+1:B$(G+2,G+2)=CHR$(K):? CHR$(K
   );:GOTO 505
KA 600 POSITION 1,23:? #6;"■[illegible]
   \]^_":RETURN
EK 601 POSITION 1,23:? #6;",-[illegible]
   #%■H":RETURN
LS 700 TRAP 900:GOSUB 350:? #6;" NAME:";:
   GOSUB 500:IF G=0 THEN GOSUB 360:GOTO 1
   80
EW 702 IF B$(3,4)="C:" THEN B$="C:"
RE 703 D$=B$:IF D$(1,1)<>"D" THEN D$="D:"
   :D$(3)=B$(3)
OD 710 IF I=8 THEN GOSUB 350:? #6;"SCRN#:
   ";:GOSUB 500:TRAP 710:V=VAL(B$(3)):IF
```

continued on next page

```
   V>141 OR V<1 THEN 710
FV 715 GOSUB 350:IF I=4 THEN ? #6;"LOADIN
   G SCREEN..."
NB 716 IF I=8 THEN ? #6;"SAVING SCREEN...
   "
EL 720 TRAP 900:CLOSE #2:OPEN #2,I,0,D$:I
   F I=8 THEN 750
TD 724 FOR J=0 TO 22
HH 725 INPUT #2;B$:I=1
OG 726 IF ASC(B$(I))<>34 THEN I=I+1:GOTO
   726-(I>15)
AG 730 POSITION 0,J:? #6;B$(I+1,I+20);
CN 735 NEXT J:INPUT #2;B$:TRAP 749:B$=B$(
   5)
AS 736 TRAP 749:IF ASC(B$(1))<48 OR ASC(B
   $(1))>57 THEN B$=B$(2):GOTO 736
NB 737 FOR I=1 TO 5:RESTORE 9400+I:READ D
   :GOSUB 770:POKE D,B:NEXT I:FOR I=1 TO
   4:GOSUB 770:NEXT I:X=B:GOSUB 770:Y=B
XN 749 CLOSE #2:GOSUB 360:GOTO 100
OW 750 I=V*50+1900:TX1=-1:TX2=0:TY1=0:TY2
   =0:NM=0:? #2;"■■■■■■■■■J.D. Casten's■
   Loading ";D$(3);" for:■■"
DQ 751 FOR J=0 TO 22:B$=STR$(I):B$(5)=" ?
    #6;/0123456789012345678 9/;":B$(11,11)
   =CHR$(34):B$(32,32)=CHR$(34)
GX 755 FOR K=0 TO 19:LOCATE K,J,D:POKE 5,
   K:POKE 6,J:IF D=131 THEN NM=NM+1
AR 756 IF TX1<0 AND D>26 AND D<31 THEN TX
   1=K:TY1=J
OG 757 IF D>26 AND D<31 THEN TX2=K:TY2=J
TX 759 B$(K+12,K+12)=CHR$(D):NEXT K:? #2;
   B$:I=I+1:NEXT J
FM 760 ? #2;I;"RET.:D.";PEEK(708);",";PEE
   K(1610);",";PEEK(710);",";PEEK(1614);"
   ,";PEEK(712);",";TX1+TX2;",";
IE 761 ? #2;TY1+TY2;",";NM;",";X;",";Y:CL
   OSE #2
CG 765 GOSUB 360:GOTO 100
DO 770 FOR J=1 TO LEN(B$):IF B$(J,J)=","
   THEN B=VAL(B$(1,J-1)):B$=B$(J+1):RETUR
   N
US 775 NEXT J:B=VAL(B$):RETURN
DM 800 IF BRK THEN POKE 16,64:POKE 53774,
   64
ZH 801 RETURN
FJ 900 GOSUB 350:? #6;"ERROR -";PEEK(195)
   ;:FOR J=15 TO 0 STEP -0.1:SOUND 0,25,6
   ,J:NEXT J:GOSUB 360:CLOSE #2:GOTO 100
JD 1000 POKE 106,PEEK(740):M=PEEK(106)-14
   :POKE 106,M-2:GRAPHICS 17:GOSUB 800:M2
   =M+10
PT 1001 ? #6:? #6;"■■Bo■M■ s■■Ee■ ■AKE■"
LQ 1002 ? #6;" ■■ ■■It■■L■Z■■Ng■.■"
FD 1004 OPEN #1,4,0,"K:"
SO 1005 P=PEEK(88)+256*PEEK(89):DIM B$(20
   0),D$(200)
LJ 1010 DIM M$(56),X(15),I(15):RESTORE 99
   00:FOR J=1 TO 56:READ D:M$(J)=CHR$(D):
   NEXT J
GX 1020 POKE M*256,0:U=USR(ADR(M$),M*256,
   M*256+1,3584):FOR J=0 TO 5:U=USR(ADR(M
   $),57872,M*256+J*512+8,504):NEXT J
NL 1099 RESTORE 9000
PP 1100 FOR K=0 TO 5:FOR J=8 TO 47:READ I
   :POKE M*256+K*512+J,I:NEXT J:NEXT K
AV 1105 FOR J=48 TO 127:READ I:FOR K=0 TO
    5:POKE M*256+J+K*512,I:NEXT K:NEXT J
DZ 1106 RESTORE 9800:FOR K=0 TO 9:READ I:
   FOR J=0 TO 5:U=USR(ADR(M$),57344+I*8,M
   *256+J*512+128+K*8,8):NEXT J:NEXT K
AF 1110 RESTORE 9200:FOR J=5 TO 15:READ I
   ,K:X(J)=I:I(J)=K:NEXT J
FU 1120 RESTORE 9300:FOR J=1536 TO 1689:R
   EAD I:POKE J,I:NEXT J:POKE 512,99:POKE
    513,6
TK 1122 RESTORE 9058:FOR J=0 TO 47:READ K
   :FOR I=0 TO 5:POKE M*256+I*512+J+464,K
   :NEXT I:NEXT J
PO 1123 U=USR(ADR(M$),M*256+120,(M+12)*25
   6+216,8)
UV 1125 RESTORE 9500:FOR J=1 TO 6:READ I,
   K:POKE 1536+I,M+K:NEXT J:U=USR(1536)
GI 1130 FOR J=0 TO 5:K=M*256+J*512+464:FO
   R I=0 TO 7
AP 1135 POKE K+I-256,PEEK((5-J)*512+M*256
   +8+I):POKE K+J*8+I,PEEK(M*256+(5-J)*51
   2+32+I):NEXT I:NEXT J
DW 1400 GRAPHICS 17:GOSUB 800:POKE 559,28
   :POKE 706,12:POKE 707,130:POKE 54279,M
   +6:POKE 53277,3:POKE 54286,64
WE 1401 DL=PEEK(560)+256*PEEK(561):POKE D
   L+3,198
OI 1410 FOR J=7 TO 27:POKE DL+J,134:NEXT
   J:POKE 54286,192
US 1420 POKE 708,52:POKE 710,166:POKE 709
   ,14
NC 1430 COLOR 32:5=15:POKE 623,1:SC=0:POK
   E 756,M:F=5:NG=0:POKE 757,224
EZ 1435 GOSUB 1950
QS 1499 GOTO 400
YP 1950 ? #6;"■dantmc ■qd■Shnm lhs";
RL 1951 ? #6;"    ■■ ■■■■ ■■■■■■    ";
BO 1952 RETURN
GM 9000 REM CHARACTER DATA
MX 9001 DATA 126,195,129,129,129,129,195,
   126
TM 9002 DATA 254,223,175,215,235,245,251,
   127
RX 9003 DATA 60,120,124,214,255,135,195,1
   26
VI 9004 DATA 126,255,219,255,231,195,231,
   126
KO 9005 DATA 6,15,11,153,153,208,240,96
HF 9006 DATA 126,195,129,153,153,129,195,
   126
ZF 9007 DATA 254,187,221,175,215,235,245,
   127
AR 9008 DATA 60,120,124,214,255,199,255,1
   26
RX 9009 DATA 126,239,255,251,209,241,251,
   126
BX 9010 DATA 14,31,17,24,24,136,248,112
SO 9011 DATA 126,195,153,189,189,153,195,
   126
YC 9012 DATA 254,245,187,221,175,215,235,
   127
CR 9013 DATA 60,30,62,107,255,239,255,126
XS 9014 DATA 126,251,241,209,251,255,239,
   126
QZ 9015 DATA 28,62,34,56,28,68,124,56
HI 9016 DATA 126,219,189,231,231,189,219,
   126
ZI 9017 DATA 254,235,245,187,221,175,215,
   127
BB 9018 DATA 60,30,62,107,255,255,255,126
AJ 9019 DATA 126,231,195,231,255,219,255,
   126
VL 9020 DATA 120,224,192,120,30,3,7,30
AB 9021 DATA 126,255,231,195,195,231,255,
   126
AZ 9022 DATA 254,215,235,245,187,221,175,
   127
BP 9023 DATA 60,30,62,107,255,247,255,126
XP 9024 DATA 126,223,143,139,223,255,247,
   126
VS 9025 DATA 96,192,192,222,123,3,3,6
BF 9026 DATA 126,231,195,129,129,195,231,
   126
ZL 9027 DATA 254,175,215,235,245,187,221,
   127
LB 9028 DATA 60,120,124,214,255,231,255,1
   26
SV 9029 DATA 126,247,255,223,139,143,223,
   126
XS 9030 DATA 0,96,206,219,219,115,6,0
SO 9031 DATA 60,120,124,214,255,131,199,1
   26
GN 9032 DATA 120,60,126,86,255,129,195,12
   6
AK 9033 DATA 60,30,62,107,255,193,227,126
UD 9034 DATA 60,120,92,214,255,231,195,12
   6
BI 9035 DATA 60,30,58,107,255,231,195,126
VU 9036 DATA 0,0,36,60,0,126,60,0
WS 9037 DATA 0,254,174,238,162,170,162,25
   4
HX 9038 DATA 255,143,175,143,255,255,255,
   255
NM 9039 DATA 255,255,255,255,255,255,255,
   255
NJ 9040 DATA 255,129,129,129,129,129,129,
   255
WO 9058 DATA 0,8,24,8,8,28,0,0
ZB 9059 DATA 0,28,4,28,16,28,0,0
TR 9060 DATA 0,28,4,28,4,28,0,0
IX 9061 DATA 0,20,20,28,4,4,0,0
XT 9062 DATA 0,28,16,28,4,28,0,0
ZN 9063 DATA 0,28,16,28,20,28,0,0
PT 9200 DATA 1,1,1,-1,1,0,0,0,-1,1,-1,-1,
   -1,0,0,0,0,1,0,-1,0,0
```

```
BS 9300 DATA 104,169,6,162,6,160,10,76,92
   ,228,216,165,5,10,10,10,24,105,48,141,
   2,208,141,3,208,166
NA 9301 DATA 7,160,0,152,157,0,158,157,0,
   159,232,200,192,8,208,244,165,6,10,10,
   10,24,105,32,133
BO 9302 DATA 7,170,160,0,185,56,154,157,0
   ,158,185,88,154,157,0,159,232,200,192,
   8,208,238
MW 9303 DATA 169,136,133,203,169,10,133,2
   04,173,244,2,141,9,212,173,196,2,141,2
   2,208,238,194,2
WL 9304 DATA 76,95,228
PK 9350 DATA 72,216,173,11,212,201,107,17
   6,30,141,10,212,165,203,24
WU 9351 DATA 105,240,141,23,208,133,203,1
   65,204,24,105,16,141,25,208,133,204,17
   3,11
QQ 9352 DATA 212,201,108,144,14,141,10,21
   2,169,56,141,2,208,173,244,2,141,9,212
   ,104,64,-1
ME 9401 DATA 708,COLOR 1
IZ 9402 DATA 1610,color
GW 9403 DATA 710,COLOR
RX 9404 DATA 1614,COLOR
TD 9405 DATA 712,BACKGROUND COLOR
UG 9500 DATA 32,12,60,12,35,13,66,13,63,0
   ,57,0
SJ 9800 DATA 14,35,36,38,39,42,43,50,52,5
   5
BB 9900 DATA 104,104,133,2,104,133,1,104,
   133,4,104,133,3,104,133,6,104,133,5,16
   0,0,240,16,177,1,145,3,230
VS 9901 DATA 1,208,2,230,2,230,3,208,2,23
   0,4,198,5,165,5,201,255,208,232,198,6,
   165,6,201,255,208,224,96
```

lesson 11: ATASCII, PEEK AND POKE

NEW OWNERS COLUMN

Article on page 55

LISTING 1

Don't type the TYPO II Codes!

```
XE 2 REM THE NEW OWNERS COLUMN
JO 4 REM BY DAVID PLOTKIN
PQ 6 REM (c) 1987, ANTIC PUBLISHING INC.
EE 8 POKE 106,PEEK(740):GRAPHICS 0
UB 10 DIM DAY$(21),M$(40),DY$(24),A$(1),F
   ILE$(15),LINE(25),PP$(40),HOLD$(257),F
   N$(14),SCR$(4500),JJ$(25),LL$(40)
DP 12 PRINT CHR$(125);"INITIALIZING..."
GK 15 SCREEN=PEEK(88)+256*PEEK(89)+40:FOR
    J=1 TO 23:LINE(J)=SCREEN:SCREEN=SCREE
   N+40:NEXT J:GOSUB 3100
ME 20 GOSUB 1000
DC 99 REM MAIN MENU SCREEN
IJ 100 TRAP 100:GRAPHICS 0:POKE 559,62:PO
   KE 53277,3:SETCOLOR 2,0,0:GOSUB 30000:
   POKE 82,0:INC=0
YH 110 PRINT :PRINT :PRINT "**MAIN MENU**
   ":PRINT :PP$=CHR$(18):PP$(40)=PP$:PP$(
   2)=PP$:PRINT PP$
ZF 120 PRINT " SELECT YOUR CHOICE (PRESS
   A LETTER)":PRINT PP$
FG 130 PRINT :PRINT "     NEW MONTH EDIT"
   :PRINT "     OLD MONTH EDIT":PRINT "
      SAVE DATA":PRINT "     CLEAR DATA"
HZ 140 PRINT "     ERASE MONTH (DISK)":PO
   KE 764,255:CLOSE #1:OPEN #1,4,0,"K:":G
   ET #1,J:A$=CHR$(J)
GE 150 IF A$="N" THEN 2000:REM GET NEW SC
   REEN
EI 160 IF A$="O" THEN 2200:REM EDIT OLD S
   CREEN
QI 170 IF A$="S" THEN 2400:REM SAVE CURRE
   NT DATA
AA 180 IF A$="C" THEN SCR$(1)=CHR$(0):SCR
   $(4500)=CHR$(0):SCR$(2)=SCR$:REM CLEAR
    THE DATA STRING
QR 190 IF A$="E" THEN 2800:REM DELETE A F
   ILE FROM DISK
ZP 195 PRINT CHR$(125):GOTO 110
BC 599 REM SCREEN EDITOR ROUTINE
BT 600 TRAP 100:CLOSE #1:OPEN #1,4,0,"K:"
   :POKE 82,0:POKE 752,0:POSITION 11,1:PR
   INT "**";:POKE 764,255
TM 610 IF PEEK(764)=255 THEN GOTO 670:REM
    NO KEY PRESSED
HD 615 GET #1,K
DN 620 IF K=125 OR K=156 OR K=157 THEN PO
   KE 764,255:GOTO 670
SN 630 YY=PEEK(84):XX=PEEK(85)
PN 635 IF XX=39 THEN K=31
CD 640 IF (XX<11 AND (YY-1)/3=INT((YY-1)/
   3)) AND (K<28 OR K>31) THEN K=31
GM 645 IF (YY=1 AND K=28) OR (YY=22 AND (
   K=29 OR K=155)) THEN K=31
SX 650 PRINT CHR$(K);:GOTO 610
SL 670 BUTTON=PEEK(53279):IF BUTTON<>3 AN
   D BUTTON<>6 AND BUTTON<>5 THEN 610
ZS 680 RETURN
TR 699 REM WRITE DATA TO DISK
OE 700 CLOSE #1:OPEN #1,8,0,FILE$:PUT #1,
   M:PUT #1,INT(Y/256):PUT #1,Y-(INT(Y/25
   6))*256
EL 710 HI=17:LO=48:REM 4400 BYTES
AZ 720 POKE 850,11:POKE 856,LO:POKE 857,H
   I:GOTO 820
DX 799 REM READ DATA FROM DISK
SD 800 CLOSE #1:OPEN #1,4,0,FILE$:GET #1,
   M:GET #1,Y1:GET #1,Y2:Y=Y1*256+Y2
XK 810 POKE 850,7:POKE 856,255:POKE 857,2
   55
RT 820 NHI=INT(ADR(SCR$)/256):NLO=ADR(SCR
   $)-NHI*256
NT 830 POKE 852,NLO:POKE 853,NHI:DQ=USR(A
   DR("hhh LV"),16):CLOSE #1
ZM 840 RETURN
AB 899 REM DISK DIRECTORY
HW 900 CLOSE #1:OPEN #1,4,0,"K:":PRINT CH
   R$(125);"DRIVE #";:GET #1,X:FN$="D1:*.
   *":FN$(2,2)=CHR$(X)
MT 905 CLOSE #1:PRINT CHR$(X):OPEN #1,6,0
   ,FN$
HI 910 FOR X=1 TO 64:INPUT #1,FN$:FN$=FN$
   (3):IF FN$(3,12)="FREE SECTO" THEN 950
HA 920 IF X/2=INT(X/2) THEN POSITION 15,(
   X+1)/2:? FN$:GOTO 940
WE 930 POSITION 2,(X+2)/2:? FN$
MB 940 NEXT X
ZP 950 RETURN
ZY 999 REM INITIALIZING STRINGS
AK 1000 DAY$="SATSUNMONTUEWEDTHUFRI"
ER 1010 M$="JANFEBMARAPRMAYJUNJULAUGSEPOC
   TNOVDEC"
XA 1020 DY$="312831303130313130313031"
BK 1030 SCR$(1)=CHR$(0):SCR$(4500)=CHR$(0
   ):SCR$(2)=SCR$
KK 1040 RESTORE 1050:FOR LOOP=1 TO 25:REA
   D DT:JJ$(LOOP)=CHR$(DT):NEXT LOOP
FU 1050 DATA 104,104,133,204,104,133,203,
   104,133,207,104,133,206,160,0,177
FV 1060 DATA 206,145,203,200,192,220,208,
   247,96
```

continued on next page

```
YZ 1070 LL$="------------------------------
   ------------"
AX 1080 RETURN
JD 1999 REM GET MONTH
LS 2000 ? "INPUT DATE: MONTH,YEAR (XX,XXX
   X)":INPUT M,Y:D=1:IF M>12 OR M<1 THEN
   2000
FD 2010 IF M<3 THEN M=M+12:Y=Y-1
YE 2020 N=2*M+INT(0.6*(M+1))+Y+INT(Y/4)-I
   NT(Y/100)+INT(Y/400)+3
VV 2030 N=INT((N/7-INT(N/7))*7+0.05):Q=N
OT 2040 GOTO 5000
TM 2199 REM EDIT OLD MONTH
LL 2200 ? "DISK DIRECTORY? (Y OR N)":POKE
    764,255:CLOSE #1:OPEN #1,4,0,"K:":GET
   #1,J:A$=CHR$(J)
UG 2210 IF A$="Y" OR A$="y" THEN GOSUB 90
   0
EI 2230 ? "WHAT FILE TO EDIT":GOSUB 4000:
   REM GET FILENAME
BB 2240 IF FN$="" THEN 100
OX 2250 GOSUB 800:REM READ DATA FROM DISK

QJ 2260 GOTO 2010
NC 2399 REM SAVE CURRENT DATA
ZU 2400 FILE$="D:":FILE$(3)=M$(M*3-2,M*3)
   :FILE$(6)=STR$(Y)
XX 2410 GOSUB 700
NH 2420 GOTO 100
XI 2799 REM DELETE A FILE
LX 2800 ? "DISK DIRECTORY? (Y OR N)":POKE
    764,255:CLOSE #1:OPEN #1,4,0,"K:":GET
   #1,J:A$=CHR$(J)
VJ 2805 IF A$="Y" OR A$="y" THEN GOSUB 90
   0
EQ 2810 ? "WHAT FILE TO DELETE?":? :CLOSE
   #1:? "ENTER FILENAME OR PRESS":? "RET
   URN TO ABORT";:GOSUB 4000
NI 2820 IF FN$="" THEN 195
AC 2830 XIO 33,#3,0,0,FILE$:GOTO 195
QX 2999 REM PRINT CURRENT SCREEN
PO 3000 TRAP 600:POKE 752,1:PRINT "■■":CL
   OSE #1:OPEN #1,4,0,"P:":FOR J=1 TO 22
YC 3010 FOR I=1 TO 40:PP$(I)=HOLD$(PEEK(L
   INE(J)+I-1)+1):NEXT I:? #1;PP$
AC 3015 IF J/3=INT(J/3) THEN ? #1;LL$
SU 3020 NEXT J:FOR Q=1 TO 5:? #1:NEXT Q:C
   LOSE #1:GOTO 600
QE 3099 REM ARRAY TO CHANGE INTERNAL CHAR
   ACTERS TO ATASCII CHARACTERS
ZC 3100 FOR II=0 TO 255:IC=II:IV=0:IF IC>
   127 THEN IV=1:IC=IC-128
JC 3110 IF IC<64 THEN AC=IC+32+128*IV:GOT
   O 3140
SP 3120 IF IC<96 THEN AC=IC-64+128*IV:GOT
   O 3140
LJ 3130 AC=IC+128*IV
OK 3140 HOLD$(II+1)=CHR$(AC):NEXT II
QT 3199 REM INITIALIZE PLAYER/MISSILE GRA
   PHICS
VJ 3200 PMBASE=PEEK(106)-16:POKE 54279,PM
   BASE:PMBASE=PMBASE*256
RV 3210 FOR W=53256 TO 53259:POKE W,3:NEX
   T W:POKE 53260,255
SP 3220 POKE 88,0:POKE 89,PEEK(106)-16:?
   CHR$(125):GRAPHICS 0:SCREEN=PEEK(88)+2
   56*PEEK(89)+40
NH 3230 FOR W=PMBASE+807 TO PMBASE+987 ST
   EP 8:FOR J=0 TO 1024 STEP 256:POKE W+J
   ,255:NEXT J:NEXT W
MC 3240 FOR W=704 TO 707:POKE W,0:NEXT W:
   POKE 559,62:POKE 53277,3:POKE 623,1
LX 3250 RESTORE 3260:FOR I=53248 TO 53255
   :READ J:POKE I,J:NEXT I:RETURN
SA 3260 DATA 48,80,112,144,176,184,192,20
   8
CH 3999 REM HANDLE FILENAMES
VL 4000 INPUT FN$:IF FN$="" THEN RETURN
YU 4010 FOR J=1 TO LEN(FN$):IF FN$(J,J)="
   :" THEN POP :FILE$=FN$:RETURN
GM 4020 NEXT J:FILE$="D:":FILE$(3)=FN$:RE
   TURN
NM 4999 REM PUT WEEKS ON SCREEN, GET AND
   SAVE STRINGS OF DATA.
EH 5000 POKE 752,1:? CHR$(125):SETCOLOR 2
   ,7,4
TJ 5015 IF M>12 THEN M=M-12:Y=Y+1
CC 5300 DY=VAL(DY$(M*2-1,M*2))
YA 5305 IF M=2 THEN IF (Y/4=INT(Y/4) AND
   Y/100<>INT(Y/100)) OR Y/400=INT(Y/400)
    THEN DY=DY+1
SN 5310 GOSUB 7000:REM RECOVER STRING SCR
   EEN
ZY 5315 FOR LOOP=1 TO 7:POSITION 0,LOOP*3
   -2
AX 5316 IF LOOP+INC*7>DY THEN POSITION 0,
   LOOP*3-2:? "■■■■■■■■";:POP :GOTO 5340
PC 5320 ? DAY$(Q*3+1,Q*3+3);" ";M$(M*3-2,
   M*3);" ";LOOP+INC*7;
PV 5325 Q=Q+1
UN 5327 IF Q=7 THEN Q=0
VQ 5330 NEXT LOOP
OL 5340 POSITION 0,23:? "  ■■■■■■■■
```

```
XC 60 PERIOD=46:QMARK=63:EXCLAM=33:SEMI=5
   9
NU 70 WCOUNT=0:TOTSYL=0:TRISYL=0:SENTENCE
   =0
PH 80 GRAPHICS 0:POKE 710,144:POKE 712,14
   4:? "     The San Francisco Fogger"
XP 90 ? "          by Charles Jackson"
AH 100 TRAP 100:POSITION 2,9:? "■File to
   process";:INPUT FN$
EQ 110 IF LEN(FN$)>3 THEN IF FN$(1,1)="D"
    AND (FN$(2,2)=":" OR FN$(3,3)=":") TH
   EN 130
AH 120 WORD$=FN$:FN$="D1:":FN$(4)=WORD$
ZP 130 POSITION 2,11:? "■Hard copy (Y/N)
   Y■■";:INPUT T$:IF  NOT (T$="Y" OR T$="
   N") THEN 130
MC 140 PRNTFLG=(T$="Y"):POKE 752,1
YR 150 CLOSE #1:OPEN #1,4,0,FN$:POSITION
   2,9:? "■■■■Processing ";FN$
NP 160 GET #1,LTTR:GOSUB 490:LSAFE=LTTR
AJ 170 POKE 77,0:IF  NOT DEBUG THEN POKE
   16,112:POKE 53774,112
WK 180 GOSUB 460:IF (PERFLAG) THEN 320
QN 190 WORD$="":OFFSET=1:TRAP 1010
YS 200 IF  NOT (ATEST) THEN 160
QP 210 REM
FL 220 WORD$(OFFSET,OFFSET)=CHR$(LTTR):OF
   FSET=OFFSET+1
NK 230 GET #1,LTTR:GOSUB 490:LSAFE=LTTR
WD 240 GOSUB 460:IF (PERFLAG) THEN 320
VW 250 IF (ATEST) THEN WORD$(OFFSET,OFFSE
   T)=CHR$(LTTR):OFFSET=OFFSET+1:GOTO 230

QZ 260 REM
QY 270 POKE 53279,7:IF DEBUG THEN ? WORD$
   ,
JK 280 WCOUNT=WCOUNT+1:LAST=LEN(WORD$):GO
   SUB 520:TOTSYL=TOTSYL+NUMSYL:LTTR=LSAF
   E
CY 290 IF NUMSYL-FOGFLAG>2 THEN TRISYL=TR
   ISYL+1
NW 300 GOTO 160
QQ 310 REM
RD 320 IF LTTR=PERIOD THEN GOSUB 430
HE 330 IF  NOT ((LTTR=46 AND FINDVOW=1) O
   R (LTTR=33 OR LTTR=63 OR LTTR=59) AND
   LEN(WORD$)>1) THEN 360
KC 340 SENTENCE=SENTENCE+1:GOTO 270
QY 350 REM
OR 360 WCOUNT=WCOUNT+1:POKE 53279,7:IF DE
   BUG THEN ? WORD$,:? 1
OK 370 GOTO 160
RE 380 REM
AO 390 REM IS (LTTR) A VOWEL?
RN 400 VOWTEST=(LTTR=65) OR (LTTR=69) OR
   (LTTR=73) OR (LTTR=79) OR (LTTR=85) OR
    (LTTR=89)
LC 410 LTTR=LSAFE:RETURN
QT 420 REM
OC 430 FINDVOW=0:FOR X=1 TO LEN(WORD$):LT
   TR=ASC(WORD$(X,X)):GOSUB 400:IF VOWTES
   T=1 THEN FINDVOW=1
OA 440 NEXT X:LTTR=LSAFE:RETURN
QZ 450 REM
ZH 460 ATEST=((LTTR)=65 AND LTTR(=90) OR
   (LTTR)=48 AND LTTR(=57)):RETURN
RD 470 REM
MU 480 REM POP EVERYTHING INTO UPPER-CASE
    AND CHECK FOR ! . ? AND ;
KD 490 LTTR=USR(ADR("hhh■■■■
```

Article on page 20

THE SAN FRANCISCO FOGGER

LISTING 1

```
/*  The San Francisco Fogger     */
/*  By Charles Jackson           */
/*  (c) 1987, Antic Publishing   */
/*  Ver. 103186                  */

/*------------------- Alcyon Include file ---------------------*/
#include        "osbind.h"

#define    TRUE              (1)
#define    FALSE             (0)
#define    CANCEL            (0)
#define    RETRY             (1)
#define    ERASE             (0)
#define    CREATE            (1)
#define    NO                (2)
#define    ALTERNATE         (8)
#define    ERROR            (-1)
#define    ONLINE           (-1)
#define    DOTS              (2)
#define    WHITE             (0)
#define    BLACK             (1)
#define    PRINTER           (0)
#define    begin             {
#define    end               }
#define    wend              }
#define    repeat            }
#define    next              }
#define    endif             }
#define    not               !
#define    then
#define    OR                ||
#define    AND               &&
#define    VOWEL             (1)
#define    CONSONANT         (0)
#define    FOURTH_TO_LAST    (to_upper & word[ len_word - 4 ])
#define    THIRD_TO_LAST     (to_upper & word[ len_word - 3 ])
#define    NEXT_TO_LAST      (to_upper & word[ len_word - 2 ])
#define    THE_LAST          (to_upper & word[ len_word - 1 ])

/*---------------- Alcyon Declarations/Equates ---------------*/
int  contrl[ 12 ],
     intin[ 256 ],  ptsin[ 256 ],
     intout[ 256 ], ptsout[ 256 ],
     workin[]={ 1,1,1,1,1,1,1,1,1,1,2 }, workout[ 57 ],
     i, j, k, l, finished, gem_handle, character, resolution,
     x1, x2, xcen, xres, xcurr, y1, y2, ycen, yres, ycurr,
     color, max_color, key, v, idx, drive, sentence, word_count,
     file_handle, read_handle, read, len_word, buffer_count,
     bytes_read, number, button, found, letter=0,
     boxheight, fog_flag, alpha_test(), x_center(), vowel_test(),
     strcpy(), strcat(), strlen(), find_vowel(), num_syllables,
     tri_syllable, make_syllables(), to_upper=223, block[ 4 ],
     total_syllables, already_drawn, bar_length, char_width,
     char_height, debug_flag, home, mybox[ 10 ], okbox[ 10 ],
     printbox[ 10 ],
     window[]  = { 34,  80,  80,    37,  37,  74,
                  286, 560, 560,   173, 173, 346 },
```

```
      window1[] = { 36,  84,  84,    39,  39,  78,
                    284, 556, 556,   171, 171, 342 },

      bar[]     = { 80, 160, 160,    154, 154, 303,
                    240, 480, 480,   166, 166, 327 },

      expand[]  = { 17,  78, 278,  56,     /* low-res. parms. */
                    158,  71, 322,  66,    /* med-res. parms. */
                    158, 172, 322, 131 };  /* hi -res. parms. */

char file_buffer[ 24576],
      path[100], filename[100], workname[100], numbuff[80], test[],
      sentalert[100], debug[200], word[60], ok[80], fog_msg[100],
      smog_msg[100], flesch_msg[100], word_msg[100], sent_msg[100],
      alert0[]      = "[0][ - The San Francisco Fogger - ][ Begin ]",
      alert3[]      = "[1][ Read another one? ][ Yes | No ]",
      alert5[]      = "[3][ Printer Offline! ][ Re-Try | Cancel ]",
      title[]       = "The San Francisco Fogger",
      author[]      = "By Charles Jackson",
      copyright[]   = "(c) 1987 Antic Publishing",
      le_letters[] = "LRS", es_letters[] = "CGHSXZ",
      io_letters[] = "GLMNSTXZ";

float fog, smog, flesch, WP_sentence, syllable3_per_sentence;

long max_len=24576, write_handle, write_bytes;

extern double sqrt();

/*-----------------------------------------------------------------*/
main()
begin
      initialize();
      do begin
            read_the_file();
            if( button != CANCEL )then begin
                  process_the_file();
                  number_crunch();
                  write_report();
            endif
            else finished=TRUE;
      repeat while( not finished );
      terminate();
end

/*-----------------------------------------------------------------*/
initialize()
begin
      int sp;

      appl_init();
      gem_handle=graf_handle( &char_width, &char_height, &i, &i );
      v_opnvwk( workin, &gem_handle, workout );
      xres=workout[ 0 ]; yres=workout[ 1 ];
      resolution=Getrez(); drive=Dgetdrv();
      graf_growbox( (xres/2), (yres/2), 10, 10,
            expand[ resolution * 4 ], expand[ resolution * 4 + 1 ],
            expand[ resolution * 4 + 2], expand[ resolution * 4 + 3 ] );
      form_alert( 1, alert0 );
      finished=FALSE;
      read=0;
end

/*-----------------------------------------------------------------*/
read_the_file()
begin
      buffer_count=0;
      path[ 0 ]=( drive+'A' ); path[ 1 ]=':';
      Dgetpath( &path[ 2 ], 0 );
      strcat( path, "\\*.*" );    filename[ 0 ]=0;
```

continued on next page

```
     fsel_input( path, filename, &button );
     if( button != CANCEL )then begin
          vq_key_s( gem_handle, &i );
          debug_flag=( i == ALTERNATE ) + 1;
          v_hide_c( gem_handle );
          strcpy( workname, path );
          truncate( workname );
          strcat( workname, filename );
          read_handle=Fopen( workname, read );
          if( read_handle > ERROR )then begin
               bytes_read=Fread( read_handle, max_len, file_buffer );
               file_buffer [ bytes_read ]='\0';
               drive=( path[ 0 ] - 'A' );
          endif
          Fclose( read_handle );
     endif
end

/*-------------------------------------------------------------*/
process_the_file()
begin
     int i;

     sentence=word_count=tri_syllable=total_syllables=0;
     already_drawn=FALSE; draw_box( CREATE );
     v_hide_c( gem_handle );
     v_gtext( gem_handle, x_center( title ),
          ((int)(yres * 2/7 + 0.5)), title );
     v_gtext( gem_handle, x_center( author ),
          ((int)(yres * 3/7 + 0.5)), author );
     v_gtext( gem_handle, x_center( copyright ),
          ((int)(yres * 4/7 + 0.5)), copyright );
     v_gtext( gem_handle,x_center( filename ),
          ((int)(yres * 5/7 + 0.5)), filename );
     while( buffer_count <=bytes_read )begin
          make_word();
          if( buffer_count <=bytes_read )begin
               total_syllables += make_syllables();
               if(( num_syllables - fog_flag) > 2 )then tri_syllable++;
               word_count++;
               if( (( file_buffer[ buffer_count ] == '.')
                         AND   ( find_vowel( word ) == 1))
                 OR   ( file_buffer[ buffer_count ] == '!')
                 OR   ( file_buffer[ buffer_count ] == '?')
                 OR   ( file_buffer[ buffer_count ] == ';')
                     /* Regard clause as sentence */
                 AND ( len_word > 1 ) )
                    sentence ++;
          endif
     wend
end

/*-------------------------------------------------------------*/
x_center( text )
/*  Accept a string and return "X" centering coordinate.      */
char *text;
begin
     return( (int)((xres - (( strlen( text )+1) * char_width ))/2) );
end

/*-------------------------------------------------------------*/
find_vowel( the_word )
/* If there's a vowel in the word, return a "1".              *
 * otherwise, return a zero.                                  */
char *the_word;
begin
     int i, found=0;

     for( i=0; i<=strlen( the_word ) AND
               ( file_buffer[ buffer_count ] == '.' ); i++ )begin
```

```
          if( vowel_test( the_word[ i ] ) == VOWEL )then found=1;
     next
     return( found );
end

/*-------------------------------------------------------------*/
make_word()
/* Get characters and place it into word[] until a complete  *
 * word is formed.                                           */
begin
     idx=0; len_word=0;

     for( i=0; i<61; i++ ) word[ i ]=0;

     /* Find the first ASCII character */
     while( buffer_count <=bytes_read AND
               not ( alpha_test( file_buffer[ buffer_count ])))begin
          draw_slider(); buffer_count++;
     wend

     /* Remove and put into word[]  */
     while( buffer_count <= bytes_read AND
               alpha_test( file_buffer[ buffer_count ]))begin
          draw_slider();      /* Update the slider bar */
          word[ idx++ ]=file_buffer[ buffer_count++ ];
          len_word++;
     wend
end

/*-------------------------------------------------------------*/
write_report()
begin
     boxheight=mybox[ 3 ] - mybox[ 1 ];
     v_hide_c( gem_handle ); draw_box( CREATE );
     v_gtext( gem_handle, x_center( title ),
          ((int)(boxheight * 1/9 + mybox[ 1 ] + 0.5)), title );
     v_gtext(gem_handle, x_center( filename ),
          ((int)(boxheight * 2/9 + mybox[ 1 ] + 0.5)), filename );

     box_make( " Fog Index: ", fog, 3, 2 );
          strcpy( fog_msg, sentalert );
     box_make( " Smog Index: ", smog, 4, 2 );
          strcpy( smog_msg, sentalert );
     box_make( " Flesch Index: ", flesch, 5, 2 );
          strcpy( flesch_msg, sentalert );
     box_make( " Word Count: ", (float)word_count, 6, 0 );
          strcpy( word_msg, sentalert );
     box_make( " Sentence Count: ", (float)sentence, 7, 0 );
          strcpy( sent_msg, sentalert );

     fence( "O.K.",(int)(xres/3 - 2*char_width),
          (int)(boxheight * 9/10 + mybox[ 1 ] + 0.5), okbox, 4 );
     fence( "Print",(int)(2*xres/3 - 3*char_width),
          (int)(boxheight * 9/10 + mybox[ 1 ] + 0.5), printbox, 4 );
     v_show_c( gem_handle, 0 );

     do vq_mouse( gem_handle, &button, &x1, &y1 );
          while( not ((((x1 > okbox[ 0 ]) AND (x1 < okbox[ 4 ])
                                          AND
                        (y1 > okbox[ 1 ]) AND (y1 < okbox[ 5 ]) )
               OR
                    ((x1 > printbox[ 0 ]) AND (x1 < printbox[ 4 ])
                                          AND
                     (y1 > printbox[ 1 ]) AND (y1 < printbox[ 5 ])))
               AND    ( button == 1 )));

     if( x1 > printbox[ 0 ] )then print_form();
     draw_box( ERASE );
     button=form_alert( 2, alert3 );
     if( button == NO )then finished=TRUE;
```

continued on next page

```
end

/*-------------------------------------------------------------------*/
print_form()
begin
      lprint( title );
      if( button != 2 )then lprint( author );
      if( button != 2 )then lprint( copyright );
      if( button != 2 )then lprint( filename );
      if( button != 2 )then lprint( "\n" );
      if( button != 2 )then lprint( fog_msg );
      if( button != 2 )then lprint( smog_msg );
      if( button != 2 )then lprint( flesch_msg );
      if( button != 2 )then lprint( word_msg );
      if( button != 2 )then lprint( sent_msg );
      if( button != 2 )then lprint( "\n\n" );
end

/*-------------------------------------------------------------------*/
alpha_test( letter )  /* Return 1 if char. is alpha-numeric. */
int letter;
begin
      return( ((letter>='A') AND (letter<='Z')) OR
              ((letter>='a') AND (letter<='z')) OR
              ((letter>='0') AND (letter<='9')) );
end

/*-------------------------------------------------------------------*/
vowel_test( letter )           /* Return 1 if char. is vowel. */
char letter;
begin
      letter=(to_upper & letter);
      return( (letter == 'A' OR letter == 'E' OR letter == 'I' OR
               letter == 'O' OR letter == 'U' OR letter == 'Y')  );
end
/*-------------------------------------------------------------------*/
make_syllables()           /* Break word[] into syllables and */
begin                      /* return the syllable count.      */
      fog_flag=letter=num_syllables=0;
      while (letter <= len_word)begin
            found=FALSE;
            while( vowel_test( word[ letter ] ) == CONSONANT
                 AND letter <= len_word)  letter++;
                /* Ignore leading consonants */

            while( vowel_test( word[ letter ] ) == VOWEL
                 AND letter <= len_word)then begin
                 letter++;
                 if( found == FALSE )then num_syllables++;
                 found=TRUE;
            wend
      wend
      if(num_syllables > 1)then begin

            /*----- Check for silent "e" ----------*/
            if(( vowel_test( NEXT_TO_LAST ) == CONSONANT ) AND
                 ( THE_LAST == 'E') )then begin
                 num_syllables--;
                 if( NEXT_TO_LAST == 'L' )then le_rule();
            endif

            /*----- Check  -es/-ed syllables ------*/
            if(( vowel_test( THIRD_TO_LAST ) == CONSONANT ) AND
                 ( NEXT_TO_LAST == 'E' ) AND
                 (( THE_LAST == 'S') OR ( THE_LAST == 'D')))
                 then esed_rule();
      endif

     /*--- Check  -io/-yi syllables ---*/
      if( len_word > 2 )then begin
```

```
          io_rule(); yi_rule();
     endif
     if( num_syllables < 1 )then num_syllables=1;
     if( debug_flag == 2 )then see_debug( word, num_syllables );
     return( num_syllables );
end

/*-------------------------------------------------------------*/
le_rule()
/* Check for "-LE" syllables such as in "Title" and "Doodle" *
 * Key le_letters are L, R & S.                               */
begin
     int i, exit=FALSE;

     if( vowel_test( THIRD_TO_LAST )==CONSONANT AND len_word>2 )begin
          for( i=0; i<strlen( le_letters ); i++)begin
               if( THIRD_TO_LAST == le_letters[ i ] ) then exit=TRUE;
          next
          if( exit == FALSE )then num_syllables++;
     endif
end

/*-------------------------------------------------------------*/
esed_rule()
/* Check for  "-es" and "-ed" syllables such as in "faces"    *
 * and "Dudes".  Key es_letters are C, G, H, S, X & Z.        */
begin
     int i, suffix, exit=FALSE;

     if( THE_LAST == 'S' )then begin
          for( i=0; i<strlen( es_letters ); i++ )begin
               if( THIRD_TO_LAST == es_letters[ i ])then exit=TRUE;
          next
          if( exit == FALSE )then num_syllables--;
          if( len_word > 4 )then begin
               suffix=( vowel_test(FOURTH_TO_LAST) == CONSONANT
                              AND THIRD_TO_LAST == 'L');
               num_syllables += suffix;
               fog_flag=suffix;
          endif
     endif

   /*--- "-ed" check for words such as "Toted" and "Flapped" ---*/
     if( THE_LAST == 'D' )then begin
          if( not (( THIRD_TO_LAST == 'D')OR( THIRD_TO_LAST == 'T')))
               num_syllables--;
          else fog_flag=1;
     endif
end

/*-------------------------------------------------------------*/
io_rule()
/* Check for  "io" syllables such as in "action" and "ion".   *
 * Key  io_letters are G, L, M, N, S, T, X & Z.               */
begin
     int i, j, value, exit=FALSE;

     /*--- Search word for an "IO" pattern ---*/
     for( j=0; j<len_word-1; j++ )begin
          if((( to_upper & word[ j ]) == 'I' ) AND
             (( to_upper & word[ j+1 ]) == 'O' ))then begin

               /*--- Does word begin with "IO" ? ---*/
               if( j == 0 )then num_syllables++;
               else begin

                    /*--- Was prior letter a KEY letter ? ---*/
                    for( i=0; i<strlen( io_letters ); i++ )begin
                         value=( to_upper & word[ j-1 ] );
```

continued on next page

```
                    next
                    if( value == ( io_letters[ i ] ))begin
                         exit=( io_letters[ i ] != 'L' );

                         /* Check "-LLIO" patterns (like "Million") */
                         if( j > 2 )then begin
                              if((( to_upper & word[j-2]) == 'L') AND
                                 (( to_upper & word[j-1]) == 'L'))
                                   num_syllables--;
                         endif
                    endif
                    if( exit == FALSE )then num_syllables++;
               endif
          endif
     next
end

/*-----------------------------------------------------------------*/
yi_rule()                /* Check for  "yi/ia" syllables such  */
begin                    /* as in "flying" and "phobia".       */
     int j;

     for( j=0; j<len_word-1; j++ )begin
          /*--- Search for a "YI" pattern.  ---*/
          if((((( to_upper & word[ j ] ) == 'Y') AND
              (( to_upper & word[ j+1 ]) == 'I'))
                   OR
           /*--- Search for an "IA" pattern. ---*/
             ((( to_upper & word[ j ] ) == 'I') AND
              (( to_upper & word[ j+1 ]) == 'A'))) then num_syllables++;
     next
end

/*-----------------------------------------------------------------*/
number_crunch()               /* Calculate Fog, Smog & Flesch  */
begin
     if( sentence == 0 ) sentence++;
     if( word_count == 0 ) word_count++;
     wp_sentence=(float)( word_count )/(float)( sentence );
     syllable3_per_sentence=(float)( tri_syllable )/(float)( sentence );
     fog   =( wp_sentence + syllable3_per_sentence ) * 0.4 + 0.005;
     smog  =sqrt( 30 * syllable3_per_sentence ) + 3;

     flesch=206.835 -  (( wp_sentence * 1.015 )
          +(0.846 * (100 * (float)total_syllables) / (float)word_count));
     if( flesch < 0 )then flesch=0;
     if( flesch > 100 )then flesch=100;
end

/*-----------------------------------------------------------------*/
draw_box( choice )     /* ERASE=0, CREATE=1  */
int choice;
begin
     int offset, action;

     v_hide_c( gem_handle ); action=0;
     if( choice == ERASE ) action=( resolution == 2 ) + 1;
     vsf_interior( gem_handle, action );
     vsf_style( gem_handle, 4);
     vsf_color( gem_handle, 3 - (2 * choice) );
     vsf_perimeter( gem_handle, choice );
     for( offset=0; offset < 4; offset ++ )
          mybox[ offset ]=window[ offset * 3 + resolution ];
     v_bar( gem_handle, mybox );
     if( choice == ERASE )then v_show_c( gem_handle, 0 );
     else begin
          vsf_interior( gem_handle, action );
          for( offset=0; offset < 4; offset ++ )
               block[ offset ]=window1[ offset * 3 + resolution ];
          v_bar( gem_handle, block );
```

```
     endif
end

/*-------------------------------------------------------------*/
draw_slider()
begin
     int slider, offset, line[ 3 ];

     if( buffer_count <=bytes_read )begin
          if( not already_drawn )then begin
               vsf_interior( gem_handle, WHITE );    /* Draw a     */
               vsf_color( gem_handle, BLACK );       /* white bar */
               vsf_perimeter( gem_handle, TRUE );    /* once.      */
               for( offset=0; offset < 4; offset ++ )
                    block[ offset ]=bar[ offset * 3 + resolution ];
               bar_length=( block[ 2 ] - block[ 0 ] ) - 1;
               v_bar( gem_handle, block );
               already_drawn=TRUE;  home= ++block[ 0 ];
               block[ 1 ]++;  block[ 3 ]--;
          endif
          slider=bar_length*((float)(buffer_count)/(float)(bytes_read));
          block[ 2 ]=slider + home;
          vsl_color( gem_handle, BLACK ); vsl_width( gem_handle, 1 );
          vsf_interior( gem_handle, 2 );  vsf_style( gem_handle, 2 );
          vsf_color( gem_handle, BLACK ); vsf_perimeter( gem_handle, 0 );
          v_bar( gem_handle, block );

          line[ 0 ]=block[ 2 ]; line[ 1 ]=block[ 1 ];
          line[ 2 ]=block[ 2 ]; line[ 3 ]=block[ 3 ];
          v_pline( gem_handle, 2, line );
          block[ 0 ]=block[ 2 ];
     endif
end

/*-------------------------------------------------------------*/
box_make( string, value, offset, dec_point )
/* Build report box.                                          *
 * Form:    box_make ( "Fog Index: ", fog, 3, 2 );            */
char *string;
int offset, dec_point;
float value;
begin
     sentalert[ 0 ]='\0'; strcpy( sentalert, string );
     ftoa( (value + 0.0005), numbuff, dec_point );
     if( dec_point == 0 )then numbuff[ strlen( numbuff ) -1 ]='\0';
     j=25 - ( strlen( numbuff ) + strlen( string ) );
     for( i=1; i < j; i++ ) strcat( sentalert, " " );
     strcat( sentalert, numbuff );
     v_gtext( gem_handle, x_center( sentalert ),
          ((int)(( boxheight * offset )/9 + mybox[ 1 ] + 0.5 )),
          sentalert);
end

/*-------------------------------------------------------------*/
fence( string, xpos, ypos, corners, width )
/* Print a character string at (X,Y), draw a box around it    */
/* and put the box coordinates into corners[].                */
char *string;
int xpos, ypos, corners[9], width;
begin
     v_gtext( gem_handle, xpos, ypos, string );
     corners[ 0 ]=xpos - char_width;
     corners[ 1 ]=ypos - char_height * 1.11;
     corners[ 9 ]=corners[ 3 ]=corners[ 1 ];
     corners[ 2 ]=corners[ 0 ] + (strlen( string ) + 2 ) * char_width;
     corners[ 4 ]=corners[ 2 ];
     corners[ 5 ]=corners[ 7 ]=corners[ 1 ] + char_height * 1.5;
     corners[ 8 ]=corners[ 6 ]=corners[ 0 ];
     corners[ 9 ]-=( resolution != 1);
     vsl_width( gem_handle, width );
```

continued on next page

```
     v_pline( gem_handle, 5, corners );
end

/*-----------------------------------------------------------------*/
lprint( string )
/* Make sure printer is online, print the string, end with   *
 * <cr> & <lf>.                                               */
char *string;
begin
     int i=0, j=0, status=0;

     button=1;
     do begin
          for( j=0; j<256 AND status != ONLINE; j++ )
               status=Bcostat( PRINTER );
          if( status != ONLINE ) button=form_alert( 1, alert5 );
     repeat while ( status != ONLINE AND button == RETRY );

     if( button != 2 )then begin
          while( string[ i ] != '\0' ) Bconout( PRINTER, string[ i++] );
          Bconout( PRINTER, '\r' ); Bconout( PRINTER, '\n' );
     endif
end

/*-----------------------------------------------------------------*/
strlen( string )
/* Returns the length of a character string.                      */
char *string;
begin
     int length;

     for( length=0; *string != '\0'; string++) length++;
     return( length );
end
/*-----------------------------------------------------------------*/
strcat( body, tail )
/* Append "tail" string to "body" string, return new length. */
char *body, *tail;
begin
     int newlength=0;

     while ( *body )begin
          *body++; newlength++;
     wend
     while ( *body++ = *tail++ ) newlength++;
     return( newlength );
end

/*-----------------------------------------------------------------*/
strcpy( destination, source )
/* Copy Source string to Destination string, return length.  */
char *destination, *source;
begin
     int length=0;

     while ( *destination++ = *source++ ) length++ ;
     return( length );
end

/*-----------------------------------------------------------------*/
truncate( string )
/* Strips off highest level in the path.                          */
char *string;
begin
     int x;

     for( x=strlen( string ); x>=0; --x )begin
          if( string[x] == 92 ) break;
     next
     string[x+1]=0;
```

```
end

/*-----------------------------------------------------------------*/
see_debug( string, value )
/* Builds form_alert with var_name & value in it.                  */
char *string;
int value;
begin
      int factor, length=0;

      for( i=0; i<75; i++ )begin
           numbuff[ i ]=0; debug[ i ]=0;
      next
      factor = (int)(( 14-strlen( string ))/2 + 0.5 );
      if( factor < 0 ) then factor=0;
      strcpy( debug, "[1][ " );
      for( i=0; i< factor; i++ )strcat( debug, " " );
      strcat( debug, string );
      length=strcat( debug, " = " );
      ftoa( (float)(value), numbuff, 5);
      i=0;
      while (( i<5 ) AND ( numbuff[ i ] != '.'))
           debug[ length + i ]=numbuff[ i++ ];
      for( i=0; i< factor; i++ )strcat( debug, " " );
      strcat( debug, " ][ OK | Cancel ]\0" );
      v_show_c( gem_handle, 0 );
      debug_flag= 3 - form_alert (1, debug);
      v_hide_c( gem_handle );
end

/*-----------------------------------------------------------------*/
terminate()
begin
      graf_shrinkbox( (xres/2), (yres/2), 10, 10,
      expand[ resolution * 4 ], expand[ resolution * 4 + 1 ],
      expand[ resolution * 4 + 2], expand[ resolution * 4 + 3 ] );
      v_clsvwk( gem_handle );
      appl_exit();
end
```

ST RESOURCE

PRINTSET

Article on page 73

LISTING 1

```
*
* Printset!  By Brad Robillard  (c) 1986 Antic Publishing
*
*------------------------------

printer   equ  5
quit      equ  0
GEMDOS    equ  1

*------------------------------
      text
start
      lea       pcodes,a6       Point a6 to list of codes.
continue
```

continued on next page

```
        tst         (a6)            Are we at the end of the list?
        beq         done            Branch if we are.

        move.w      (a6)+,-(SP)     Otherwise move character onto stack.
        move.w      #printer,-(SP)  Move character destination onto stack.
        trap        #GEMDOS         Actually output the character.

        add.l       #4,SP           Correct stack for bytes pushed.
        tst         d0              Was there a printer error?
        bne         continue        Branch if not for next character.
done
        move.w      #quit,-(SP)     Move terminate opcode onto stack.
        trap        #GEMDOS         CP/M Terminate Application call.

        add.l       #2,SP           Hope we never get here
        rts                         But just in case!

*-------------------------------
pcodes
        dc.w        27, 64, 0       Reset code for Epsons -> ESC @
        end
```


Be the TRAIN DISPATCHER

Available for your:
Atari 400, 800, 800XL
for only $15.00
+ postage and handling
send to:
Signal Computer Consultants
P.O. Box 18222, Dept. 25
Pittsburgh, PA 15236
(412) 655-7727
Color TV or Monitor recommended.

Play this fast-paced computer video game that's so true-to-life that a major railroad indicated they use it in dispatcher training.

TRAIN DISPATCHER's 24 displays help you make crucial decisions, RAPIDLY. You're under pressure, but in control—throwing switches, clearing and cancelling signals, constantly maneuvering both east and westbound trains. Keep the tracks clear ahead of all your trains and watch your score go up!

Action packed, yet non-violent, TRAIN DISPATCHER's 5 levels of play challenge players from age 8 to 80. Work your way up from "Cub Dispatcher" to "Chief Dispatcher" or even "Trainmaster."

Created by designers of computerized traffic control systems for operating railroads, TRAIN DISPATCHER will increase your appreciation for actual railroad operations.

TRAIN DISPATCHER comes complete with Instruction Manual and keyboard template.

USA & CANADA add $2.50 postage & handling ($4.00 foreign) for each game ordered. All checks or money orders must be in USA funds, all foreign payments must be against USA banks. PA residents add 6% state sales tax. Visa, Mastercard also accepted, show card number expiration date and signature. **PLEASE INDICATE DISC OR TAPE.**

CIRCLE 052 ON READER SERVICE CARD

DIGITAL VISION

COMPUTEREYES™

VIDEO IMAGES ON YOUR COMPUTER!

Finally—an inexpensive way to capture real-world images on your computer's graphics display! COMPUTEREYES™ is an innovative slow-scan device that connects between any standard video source (video tape recorder, video camera, videodisk, etc.) and your computer. Under simple software control, a b/w image is acquired in less than six seconds. Unique multi-scan modes also provide realistic grey-scale images. Hundreds of applications!

Package includes interface module, complete easy-to-use software support on disk, owner's manual, and one year warranty all for $129.95 plus $4.00 S&H (USA).

Also available as a complete package including:
- COMPUTEREYES™
- Quality b/w video camera
- Connecting cable

ONLY $129.95

Demo disk available for $10.00 postpaid (refundable).

See your dealer or order direct. Mass. residents add 5% sales tax. Mastercard, Visa accepted. To order, or for more information, write or call:

Available for:
- Apple II, II+, IIe and IIc
- Commodore 64/128
- Atari 800/800XL/130XE
- IBM PC and compatibles ($249.95—includes additional features)
- Atari ST ($249.95-full color digitizer)

DIGITAL VISION, INC.
66 Eastern Avenue
Dedham, MA 02026
(617) 329-5400

CIRCLE 029 ON READER SERVICE CARD

ADVERTISERS LIST

Be sure to mention ANTIC when contacting these advertisers—all of whom support the Atari Computer.

	READER SERVICE NO.	PAGE NO.
ABBY'S	003	111
ALLEN MACROWARE	005	112
ALPHA SYSTEMS	007	33
AMERICAN T.V.	008	32
ANTIC		15,66,87
B & C COMPUTERVISION	015,082	37,112
BLACK PATCH	019	57,58,59
C.S.S./APEX	081	63
COMPUTER CREATIONS	022	40
COMPUTER MAIL ORDER	023	23
COMPUTER SOFTWARE SERVICES	021	32
COMPUWARE	068	18
COVOX	025	30
DIGITAL VISION	029	110
ELECTRONIC ONE	028	7
GEISCO	035	115
HAPPY COMPUTERS	036	21
INTELLICREATIONS	031	13
LOGICAL DESIGN WORKS	037	18
MAD SCIENTIST	040	112
MICROCUBE	043	19
MICROTYME	044	60
PROTECTO	049	76,77
REEVES SOFTWARE	050	112
S & S WHOLESALERS	060	41
SIGNAL COMPUTER	052	110
SOFT BYTE	053	112
SOFTWARE DISCOUNTERS	054	27
STARSOFT DEVELOPMENT	056	51
STARWISE	057	112
SUBLOGIC	058	7
TERRIFIC PERIPHERALS	063	72
TEVEX	062	26
UNLIMITED SOFTWARE	083	112
WHITE HOUSE COMPUTERS	074	2
WHITE LION	067	32
ZOBIAN CONTROLS	080	39

ST ADVERTISERS LIST

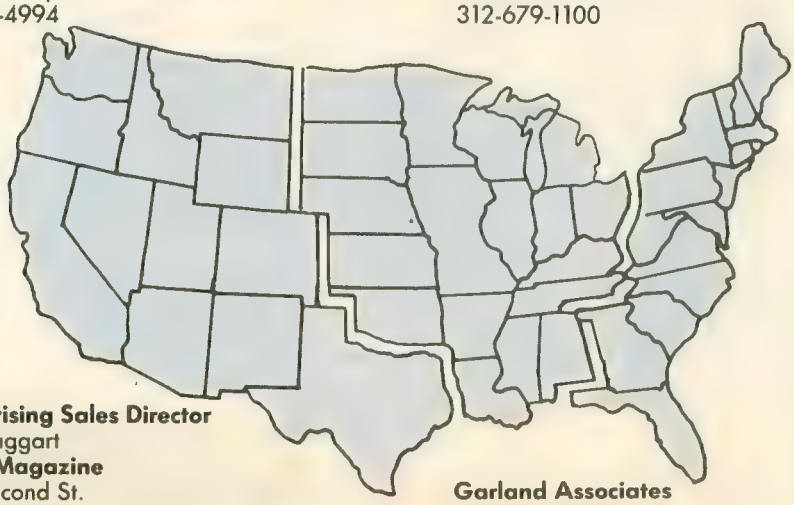
	READER SERVICE NO.	PAGE NO.
ABACUS	001,002	49,51
ACCUSOFT	004	112
ARTWORX	013	54
ATARI	014	64
BATTERIES, INC.	017,020	3,65
BECKMEYER DEV.	018	113
CENTRAL POINT	016	12
DISCLONE	026	30
ECHO DATA		54
FRED BUCH	030	37
I.S.D.	032,033	19,62,72,74
LANCE HAFFNER GAMES	034	37
LYCO	038,039	4,82,83
MEGAMAX	041	12
METACOMCO	042	51
MICHTRON	064	14
MIDISOFT	045	112
MIRAGE SYSTEMS	046	45
MISSION SOFT	047	53
ORIGIN SYSTEMS	085	116
PARADOX	048	19
PROCO	070	74
SENSE SOFTWARE	051	112
ST PLUS	055	113
SZABO	059	113
T.D.I.	061	54
TIMEWORKS	069	9
XLENT	065	68

This list is provided as a courtesy to our advertisers. ANTIC does not guarantee accuracy or comprehensiveness.

ADVERTISING SALES

Phoebe Thompson Associates
Phoebe Thompson
408-356-4994

The Pattis Group
Jill Krotich Burrow
312-679-1100



Advertising Sales Director
John Taggart
Antic Magazine
524 Second St.
San Francisco, CA 94107
(415) 957-0886

Garland Associates
Peter Hardy
617-749-5852

Phoebe Thompson Associates
15640 Gardenia Way
Los Gatos, CA 95030
PHOEBE THOMPSON
408-356-4994

The Pattis Group
4761 W. Touhy Ave.
Lincolnwood, IL 60646
JILL KROTICH BURROW
312-679-1100

Garland Associates
10 Industrial Park Rd.
Hingham, MA 02043
PETER HARDY
617-749-5852

Address all advertising materials to:
Katherine Murphy
Advertising Production Coordinator
Antic Magazine
524 Second Street
San Francisco, CA 94107

LOTTERY PLAYERS

$ $ $ $ $ $

Why guess at those lotto numbers! Your computer can give you a real edge in those big state lottos!

"The Lotto Program" will quickly tell you which numbers you should be playing! No random numbers, this program actually analyzes the past winners so you can project which numbers will likely come up in the next few drawings. You simply add the latest winners each week and the program does the rest. It's fun and easy to use and could be worth millions of dollars! APPLE, C/64, IBM and ATARI 800/130 versions are ONLY $21.95. The Super MacIntosh version is only $29.95. Visa, MC or checks welcome. Please add $1.50 for shipping. *We give good fast service!*

(513) 233-2200
SOFT-BYTE
P.O. BOX 556 FOREST PARK
DAYTON, OHIO 45405

CIRCLE 053 ON READER SERVICE CARD

CARDIAC ARREST!

for 800/XL/XE or ST

$69

with 48-page manual

The ultimate adventure — because it's real. "Cardiac Arrest!" is an incredible cardiac resuscitation simulator — so stimulating, it's like a medical adventure game for doctors, nurses, or paramedics. Or for someone who wants to play doctor.

You interpret the on-screen EKG and vital signs, type your order (in regular English), and see what happens. You won't believe this simulator runs on a home computer. Over three years in development by an emergency physician.

Other ACLS Software:

EKG Teaching $29
Protocol Learning $29
CardioQuiz $19

Mad Scientist Software
2063 N. 820 W., Pleasant Grove, UT 84062
801-785-3028

CIRCLE 040 ON READER SERVICE CARD

DBSENSE

is a text-based relational database program for Atari ST computers. Color is used, but not needed.

Creating DBs is very simple. There's only one data type (ASCII) and column widths aren't specified.

From keyboard: create, manipulate, display DBs.

Write programs in the DBSENSE language tailored to your own personal or business needs.

Programs can take the place of a spreadsheet.

Programs can load needed DBs from a disk, use data from them to perform calculation (16 digits), create new DBs, fill in preprinted forms, create bills or other documents for a list of clients, print address labels for same clients, etc.

DBSENSE has a word processor with which reports can be merged into letters or other documents.

A program can use the word processor and data from any number of DBs to customize a letter to a list of clients.

Sense Software — Price $49.95
105 Iron Mountain Road — No charge cards
Warwick, N.Y. 10990 — 914 986 2711

CIRCLE 051 ON READER SERVICE CARD

THE SEARCH FOR NEW, QUALITY ATARI 8-BIT SOFTWARE IS OVER! HERE THEY ARE

SUPER REEVEKEY (XL/XE only!).....$19.95
Cure your CX85 KeyPad with the only keypad handler for serious keypad owners. Works with most software through our unique interpreter modes, and allows users to design their own layouts! Each key can represent up to ten characters (e.g. the YES key could type 'DATA' when pressed). If you have a CX85 KeyPad, then you need the Super ReeveKey!

BACKUP MASTER (XL/XE only!).....$29.95
The ultimate disk backup program! Backs up virtually any disk using software only. No parameters necessary! For backup power equal to hardware modifications without the outrageous price, you need BackUp Master!

NEWS STATION (48K required).....$29.95
Design your own newspaper with an Atari computer. Easily combines text, graphics and Print Shop(tm) icons on every page. Make creating fancy newsletters or advertisements a pleasure with the News Station. Requires an Epson compatible printer or a ProWriter.

ALL PRODUCTS LISTED ARE AVAILABLE FOR IMMEDIATE DELIVERY! TO ORDER SEND A CHECK, MONEY ORDER OR CALL FOR A COD.

REEVE Software
2991150 Old Farm Lane
Warrenville, IL 60555
(312) 393-2317

CIRCLE 050 ON READER SERVICE CARD

LET'S GAMBLE!

ULTIMATE CRAPS

- $2,000 Limit! Double Odds!!
- Learn to play like the pro's!
- Programmed by a Crap Dealer.
- Over three years in the making.

U.C. was modeled after the game of Bank Craps (as played on the Las Vegas Strip), and has proven invaluable during gambling consultations! Now **YOU** can become an expert at Craps, **BEFORE** you visit the casino! Help screens explain each bet. Complete Data analysis at the end of each 'hand'. Documentation includes; complete rules, 5 betting systems, 6 Place bet methods, Smart Money Management, Craps glossary, and much more! THIS IS NO GAMBLE!! Only $29.00

Other Starwise Software:
CASINO KENO $14.00
Play Keno in your living room.

For 800/XL/XE, Disk. Add $3 per order, foreign add $5. NV residents add tax. Commercial quality programs wanted. Highest royalties paid! Contact:

Starwise Software
4535 W. Sahara Ave., Suite 105-327
Las Vegas, NV 89102 • (702) 362-2004

CIRCLE 057 ON READER SERVICE CARD

The Atari ST's first full-function MIDI multi-track recording studio.

- Fast real-time record, playback, overdub
- 32 independent tracks
- 30,000+ notes per song
- Designed for ease-of-use
  - No commands to memorize
  - Mouse, menu, graphics-oriented
  - Tape recorder-style controls
- Flexible region editing
- Step record for note-by-note entry
- Real-time tempo change and track mixing

Hardware required: Atari ST and MIDI instrument

MIDISOFT STUDIO $99
INTRODUCTORY PRICE (demo disk-$10)
30-day money back guarantee

(206) 827-0750

MIDISOFT CORPORATION

P.O. Box 1000, Bellevue, WA 98009

CIRCLE 045 ON READER SERVICE CARD

AccuSoft® Presents

ST BASIC PIZZAZZ

Without the Price!

You've invested in a powerful machine — the Atari ST But you find it's tough writing fancy programs

Now you can express your creativity... Show off the impressive ST graphics capabilities... Without having to learn a complex new language!!!

ST Tools I — Over 60 easy-to-use Basic subroutines for GEM File Selector and Dialog Boxes, VDI Graphics, and more . . . without having to type any more PEEKS or POKES!!! Includes softcopy documentation . . . **$12.95**

ST Demos I — Six compiled programs (music, games, graphics, utilities) plus the original ST Basic source code to modify or use in your own programs Plus ST Basic tips A great learning tool **$12.95**

Both the above disks — A perfect couple **$19.95**

ST Basic Developer's Kit — Create programs quickly with the Atari Basic Interpreter, then compile them as is to get programs that run directly from the desktop *5-40 times faster than normal!!!* Package includes LDW ST Basic Compiler, manual, plus **both** ST Tools I and ST Demos I *Everything you need* ..... *only* **$79.95**

ST Public Domain Disks — $5
(write for free Catalog and ST Tips)

AccuSoft®
Dept 5C
P.O. Box 02214
Columbus, OH 43202

Free Shipping on all orders
Check or Money Order Only
Ohio Residents add 5.5% tax

CIRCLE 004 ON READER SERVICE CARD

GTIA $4.50
850 ROM $12.00
BASIC REVC $12.00
XL ANTIC $12.00
XL/XE OS $12.00

SUPER SPECIAL!!
810 DISK DRIVE
IN BROWN PLASTIC CASE
WITH I/O CABLE AND
POWER SUPPLY
$110
WITH HAPPY V7.0
$199.95

Complete working 810 Less case $120.00 ($100.)
With B&C Black Anodized Case $140.00 ($120.)
With Case and Happy Upgrade $220.00 ($200.)
Field Service Manuals 800/400, 800XL or 810 .... $25. ea
For 1050, 1025, 1027, 825, 850 or 1200XL ..... $20 ea
Diagnostic Cartridges Computer or Disk ..... $25. ea
810 Happy Upgrade $119.95
($) Prices in ( ) do not include I/O Cable or Power Pak

B&C computervisions (408) 749-1003
3283 Kifer Rd., Santa Clara, CA 95051

CIRCLE 082 ON READER SERVICE CARD

XL 256K MacroRam board for the 800XL

- NO solder on socketed machines
- use as ramdisk or extra ram
- upgrade single drive systems
- maximize multiple drive sys.
- fast animation-page flipping
- 3 times the extra ram as 130xe
- same bank area as 130xe
- includes multidensity Ramdisk
- user selectable 3 densities
- page flipping-fast load demos
- with or without ram chips

8 256K-150ns ramchips opt.

less ram $49.95

with ram 82.95

cal res. add 6.5%
foreign add 3.00
cod add 3.00
no charge cards

Allen Macroware — po box2205 redondo bch CA 90278 — 213 3764105

CIRCLE 005 ON READER SERVICE CARD

XL/XE BOSS II

for 130xe, 800xl, 1200xl

the XL BOSS has been completely rewritten--more compatability plus new features!

- runs more software
- monitor now built-in
- coldstart with custom D.S.
- disassembler added
- coldstart and keep user D.S.
- create and save your own D.S.
- same great console commands
- coldstart from console keys
- BASIC off default-on with OPT.
- dual Operating Sytem board
- use stock or custom D.S.

new price

$59.95 US

cal res. add 6.5%
foreign add 3.00
cod add 3.00
no charge cards

Allen Macroware — po box2205 redondo bch CA 90278 — 213 3764105

CIRCLE 005 ON READER SERVICE CARD

THE WAIT IS OVER!

MT C-SHELL™ IS HERE.

MAIN FRAME PERFORMANCE FOR YOUR ST . . .

- Multiuser and Multitasking
- Electronic Mail
- Print Spooling
- Unix™ Like Environment
- And it Runs TOS Programs

$129.95
COMPLETE

Beckemeyer Development Tools

592 JEAN STREET, #304, OAKLAND, CA 94610
415/658-5318

CIRCLE 018 ON READER SERVICE CARD

PRINTER RIBBONS

We can supply ribbons (½" max. wide) for most computer printers. **WRITE FOR QUOTE** giving make and model number.

Ribbons reinked (½" max. wide) $5.00

Fanfold paper 18 lb.
approx. 3000 sheets
9½ x 11 ..... $20.00
plus shipping UPS 30 lb.

approx. 3000 sheets
14⅞ x 11 ..... $28.00
plus shipping UPS 35 lb.

California delivery add 6%

Compware Products Co.
P.O. Box 1711
Whittier, CA 90609

CIRCLE 068 ON READER SERVICE CARD

DISK-OF-THE-MONTH CLUB *
P.O. BOX 116, FAIR LAWN, N.J. 07410-0116

NAME _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP _____

* Div. of UNLIMITED SOFTWARE INC

CIRCLE 083 ON READER SERVICE CARD

STplus tm

P.O. 1197, Berkeley, CA 94701

Save money from an authorized 1040 ST dealer! We are totally committed to the new Atari line and we support everything we sell! GOOD PRICES & EXCELLENT SUPPORT!

1040 ST COLOR = $959 MONO = $799
520 ST COLOR = 799 - MONO = $639
1 MEG FOR $145, DUAL DSDD add $300
Atari 20 mb hard disk $639, 60 mb for $1715
Epson DX - 10 = $249, Epson LX - 80 = $239
Canon PJ - 1080A Color Printer $239

Mark Williams 'C'	$125	Megamax	$160
Hisoft Devpac	$56	Fortran 77	$104.95
Stargilder	$31.50	Psi Chess	$42.00
Flight Simulator	$35.00	Thai Boxing	$14.00
Dungeonmaster	$27.00	Time Bandit	$27.00

WE CARRY ALL TITLES & HARDWARE

Microsoft Write	$90.00	Thunder	$27.95
Make It Move	$25.00	Fontwriter	$27.95
Ansigraph VT102	$55.95	Flash	$27.95
GRAPHIC ARTIST	$140	MAGIC SAC +	$120

Nat'l(800)433 - 6222 Calif(800)874 - 4789
S.F. Bay area(415) 849 - 8717 AmexVisaMC

CIRCLE 055 ON READER SERVICE CARD

MOVING?

Don't Forget Us!

☐ **I am also a STart subscriber.**

New Address:
Name _____

Address _____

City _____

State _____

Zip _____

Place current address label here.

Fill in coupon and mail to:

Antic
P.O. Box 1919
Marion OH
43306

BY BILL MARQUARDT, ANTIC TECHNICAL ASSISTANT

ROTATE

This short routine flips your Atari's character sideways! FLIPPER.BAS was written by Mark Brown in the October, 1986 issue of Current Notes, the publication of the Washington Area Atari Computer Enthusiasts. (See the article about WAACE elsewhere in this issue.)

Lines 10 through 40 contain the flipping routine and lines 70 to 90 contain a sample program demonstrating the routine.

```
10 C=0:DIM A$(72):FOR A=1 TO 72:READ B:C=C+A*B:A$(A,A)=
CHR$(B):NEXT A:IF C<>353341 THEN ? "DATA ERROR! ! !":STOP
20 DATA 104,104,133,213,104,133,212,169,0,160,7,153,217,0,1
36,16,250,169,1,133,214,169,7,133,216,164,216,177
30 DATA 212,133,215,160,7,169,128,36,215,208,21,74,136,16,2
48,6,214,198,216,16,232,160,7,185,217,0,145,212,136
40 DATA 16,248,96,72,185,2317,0,5,214,153,217,0,104,208,233
50 REM SUBROUTINE ABOVE:SAMPLE PROGRAM BELOW
70 ? CHR$(125);"Please wait. . .":FOR B=0 TO 3:FOR A=0 TO
31:POKE PEEK(88)+256*PEEK(89)+4C*B+A+404,32*B+A:NEXT A
80 NEXT B:DIM F$(2048):A=INT(ADR(F$)/1024)*1024:A=A+102
*(A<ADR(F$)):POKE 756,A/256:FOR B=0 TO 511
90 POKE A+B,PEEK(57344+B):POKE A+B+512,PEEK(A+B):NEXT B:
FOR B=0 TO 63:JUNK=USR(ADR(A$),512+A+8*B):NEXT B
```

If you have a Tech Tip that you would like to share with other readers, send it along to Antic Tech Tips, 524 Second Street, San Francisco, CA 94107. You might get your name in print. We always welcome very short programs that demonstrate the Atari's powers, simple hardware modifications, or useful macros for popular software.

VARIABLE LISTER

William Schellhaas of Brooklyn, New York, submits this quick and easy variable lister. If you want to print a hard copy of your variable list, just remove the word REM from line 31605.

```
31600 VARLST=PEEK(130)+PEEK(131)*256
31601 LSTVAR=PEEK(132)+PEEK(133)*256
31602 FOR XXX=VARLST TO LSTVAR-1
31603 CH=PEEK(XXX)
31604 IF CH>127 THEN ? CHR$(CH-128):GOTO 31607
31605 REM POKE 838,166:POKE 839,238
31606 ? CHR$(CH);
31607 NEXT XXX
```

I/O CONTROL BLOCK

This short BASIC program demonstrates one of the quickest ways to read and write to a disk file. You can use it in your own BASIC programs to rapidly load and save character sets, Player/Missile data, or even graphics.

Before using this routine, you must define a buffer—a chunk of memory which holds the data to be written to (or read from) the disk. A character string makes a good buffer.

Next, you must tell your Atari where to find your buffer, how many bytes you want to transfer, and whether you'll be reading or writing to the disk. Convert the address of the buffer and the number of bytes to transfer into low-bytes and high-bytes. Place the address bytes into the variables BUFFADDRLO and BUFFADRHI. Place the remaining two values into BUFFLENLO and BUFFLENHI. Use the variable CMD to tell the routine to read from the disk (CMD=7) or write to it (CMD=11).

See SLIDES.BAS, the 130XE Slide Show program in this issue, for an example of using this routine to load and save graphics screens to disk.

```
100 IOCB1=848:REM FILE
LOADER/SAVER
110 DIM ML$(7):FOR I=1 TO 7
120 READ D:ML$(I,I)=CHR$(D):
NEXT D
130 REM CMD: READ=7;
WRITE=11
140 OPEN #1,4,0,"D:MY FILE"
150 POKE IOCB1+2,CMD
160 POKE IOCB1+4,BUFFADDRLO
170 POKE IOCB1+5,BUFFADDRHI
180 POKE IOCB1+8,BUFFLENLO
190 POKE IOCB1+9,BUFFLENHI
200 X=USR(ADR(ML$),16)
210 CLOSE #1
220 DATA 104,104,104,170,76,86,
228
```

"Online computing costs had me scared stiff..."

$10.00+ per hour

"With GEnie™ I found adventure online for less."

$5 per hour

Most online information networks can freeze your computing budget faster than you can say "Help!" Not so with GEnie, the General Electric Network for Information Exchange. As part of the world's largest commercially available teleprocessing network of General Electric Information Services Company, GEnie lets you experience all of the fun and excitement that online computing has to offer.

Evenings, weekends, holidays. Just $5 per hour.

With GEnie, you can make friends, set up travel reservations, get the news, be entertained, even shop for a fraction of what other information services charge.

And you get a lot more for your money.

With GEnie's Atari† ***RoundTable™ Special Interest Group*** you can discuss the latest in Atari products and accessories; download hundreds of public domain software programs, and participate in exciting and informative online conferences. And, uploads are FREE on GEnie! **There's more!**

Meet friends old and new with GEnie's ***LiveWire™ CB Simulator*** or exchange messages with GEnie's ***electronic mail*** service. Schedule a trip with ***American Airlines travel service.*** Fun and learning for the whole family with ***Grolier's electronic encyclopedia.*** Play multiplayer and classic games in GEnie's ***Game Room.*** Get the latest in domestic and international ***computing news.*** All this and there's more to come. New services are being added each and every month!

Only $18 to register! Save up to 60%!

Check out the chart. Compare the savings for yourself. You'll find GEnie delivers all of your favorite services for an incomparable price, at incomparable savings.

Compare & Save	Services						Pricing			
	Travel & Shopping	*SIGs/User Groups*	*Electronic Mail*	*CB Simulator*	*News*	*Games*	*Registration Fee*	*Monthly Minimum*	*Non-prime time rates*	
									300 baud	*1200 baud*
The Source	X	X	X	no	X	X	$49.95	$10.00	$8.40	$10.80
CompuServe	X	X	X	X	X	X	$39.95	none	$6.00	$12.50
GEnie*	**X**	**X**	**X**	**X**	**X**	**X**	**$18.00**	**none**	**$5.00**	**$5.00**

**Rates and Services shown in effect 9/86. Non-prime time applies Mon.–Fri., 6pm–8am local time, all day Sat., Sun., and nat'l holidays. Subject to service availability. Additional surcharge applies for 2400 baud service.*

With services and savings like these, now you can discover the adventures of online computing without the fear of paralyzing high costs. Get online with GEnie. Sign up today!

Sign up from your keyboard today.
4 Easy Steps:

1. Have your Visa, MasterCard or checking account number ready.
2. Set your modem for local echo (half duplex)—300 or 1200 baud.
3. Dial **1-800-638-8369.** When connected, enter HHH
4. At the U# = prompt enter **XJM11918,GEnie** then RETURN.

Need help or more information? No modem yet? We can help. Call **1-800-638-9636.**

GEnie™

Stay online longer, for less.

GE INFORMATION SERVICES

General Electric Information Services Company, USA

GEnie rates and services subject to change. Uploads are free during non-prime hours at 300 or 1200 baud. Third-party services offered on GEnie may include additional charges.

† *Atari is a registered trademark of Atari Corporation.*

CIRCLE 035 ON READER SERVICE CARD

THE STARS

THUNDER *New!*

The writer's assistant

"extremely fast and flexible . . . destined to make a lot of noise!" — COMPUTES ST

3 PROGRAMS IN ONE!

① SPELLING CHECKER 50,000 words
- Real-time mode: program alerts you when you've made a mistake
- Stand-alone mode: have Thunder! check the text after you've finished writing
- Select the correct spelling from a list of similar words — Thunder makes the change instantly

② ABBREVIATION EXPANDER saves you thousands of repetitive keystrokes
- Simply enter a pre-set abbreviation and Thunder! expands it to full form

③ DOCUMENT ANALYZER gives you a statistical report including number of words, average sentence length, FOG score and much more!

ONLY $49.95 * NOT COPY PROTECTED

TIMELINK

Electronic calendar/diary system

"you'll find Timelink indispensable!" — ST WORLD

Your essential tool for planning and record keeping!
- Windows for each day, week, month and year — put any combination on the screen simultaneously
- Instant and automatic updating between frames
- Built-in database capabilities let you keep track of expenses, billable hours and other timely data
- Add/Subtract, Time Between Dates and other features help plan ahead

ONLY $49.95 * NOT COPY PROTECTED

DEGAS

Design and entertainment graphic arts system

"If you want the best graphic arts package for the Atari ST, get DEGAS!" — ANTIC MAGAZINE
- total flexibility: create and store your own custom brush patterns, colors, fill patterns and more
- powerful TEXT capability lets you combine words and pictures
- choose the ideal letter size and weight from the built-in DEGAS TEXT FONT — or design your own font
- draw an accurate LINE, CIRCLE, DISK, BOX or FRAME by simply setting two points — DEGAS does the rest automatically
- MAGNIFY any picture or portion
- MOVE or COPY any figure, anywhere on the screen
- advanced graphic design tools include MIRROR, SHADOW, and AIRBRUSH
- works in all three Atari ST resolution modes

ONLY $39.95 * NOT COPY PROTECTED

COMING SOON • PAPERCLIP ELITE!

ISGUR PORTFOLIO SYSTEM *New!*

Investment manager

"It is dangerous to look at any software package and say, 'This is the one', but this one comes very close." — COMPUTERIZED INVESTING

Helps you manage any combination of investment portfolios more efficiently — stocks, bonds, options, commodities, mutual funds. For casual investors and professionals.
- Designed by Lee Isgur, top Wall Street analyst and V.P. of PaineWebber NY.
- Program updates your portfolios automatically with the latest market data — pre-set for all the popular on-line financial services
- Powerful features show you the most profitable decisions: "Suggest", "Raise Money", "Gains/Losses" and many more
- Analyze, compile and display your investment data in new ways, to gain new insights

ONLY $199.95 * NOT COPY PROTECTED

I*S TALK *New!*

Powerful, easy telecommunications

". . . complete telecommunications that offers you three levels of user definable macros and a 50,000 word memory-resident spelling checker." — PERSONAL COMPUTING

Takes the hassle and uncertainty out of telecommunicating
- Multitude of exceptional features are clearly organized on the GEM user interface
- Call up a HELP window for every major function
- Totally flexible data routing to any combination of devices — disk to modem, modem to memory, screen to modem . . .
- 50,000-word memory-resident, real-time spelling checker to ensure error-free outgoing messages

ONLY $49.95 * NOT COPY PROTECTED

DEGAS ELITE *New!*

For those who want advanced features

The professional ST graphic package. All the powerful design features that made DEGAS a critical success. Plus, fantastic new capabilities.

"Degas Elite is state of the art software!" — ANALOG

ADVANCED FEATURES:
- Up to 8 MULTIPLE WORK SCREENS let you work on several pictures simultaneously
- CUT and PASTE between pictures in different screens
- SCALE, FLIP and ROTATE whole pictures or portions
- Incredible new advanced features including; color animation, block move, text size and font style, color fill patterns, new drawing capabilities, stretch, rotate and much, much more!

ONLY $79.95 * NOT COPY PROTECTED

BATTERIES INCLUDED

BATTERIES INCLUDED, an ITM company, 30 Mural Street, Richmond Hill, Ontario, Canada, L4B 1B5 (416) 881-9941, Customer Information (416) 881-9816

If you can't find this product at your local retailer, you may order it direct from us at the full suggested list price plus $5.00 for postage and handling. For product orders please call 1-800-387-5707 (U.S. only). With all Batteries Included products you can always have the latest version of your program by returning the original disk and $10.00. Write to us for our full color catalog of products for the APPLE, APPLE MACINTOSH, ATARI, ATARI ST, COMMODORE, COMMODORE AMIGA, AND IBM SYSTEMS.

©1986 Batteries Included. APPLE, APPLE MACINTOSH, ATARI, ATARI ST, COMMODORE, COMMODORE AMIGA, AND IBM are registered trademarks respectively of APPLE COMPUTERS INC., ATARI CORPORATION, COMMODORE BUSINESS MACHINES INC., AND INTERNATIONAL BUSINESS MACHINES INC. Some features may vary with computer system used.

*All prices shown in U.S. funds. Retailers may sell for less.

If you can't find this product at your local retailer call our toll-free number to order: *1-800-387-5707*

CIRCLE 020 ON READER SERVICE CARD